

Cornell University Announcements



**College of
Arts and Sciences**



Cornell University

College of Arts and Sciences

1974-75

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Cornell University Announcements

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Announcement

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The courses and curricula described in this *Announcement*, and the teaching personnel listed herein, are subject to change at any time by official action of Cornell University.

1974-75

Cornell Academic Calendar

Registration, new students
Registration, continuing and rejoining students
Fall term instruction begins, 7:30 a.m.
Thanksgiving recess:
 Instruction suspended, 1:10 p.m.
 Instruction resumed, 7:30 a.m.
Fall term instruction ends, 1:10 p.m.
Final examinations begin
Final examinations end
Registration, new and rejoining students
Registration, continuing students
Spring term instruction begins, 7:30 a.m.
Spring recess:
 Instruction suspended, 1:10 p.m.
 Instruction resumed, 7:30 a.m.
Spring term instruction ends, 1:10 p.m.
Final examinations begin
Final examinations end
Commencement Day

The dates shown in the Academic Calendar are subject to change at any time by official action of Cornell University.

Thursday, August 29
Friday, August 30
Monday, September 2

Wednesday, November 27
Monday, December 2
Saturday, December 7
Friday, December 13
Saturday, December 21
Thursday, January 23
Friday, January 24
Monday, January 27

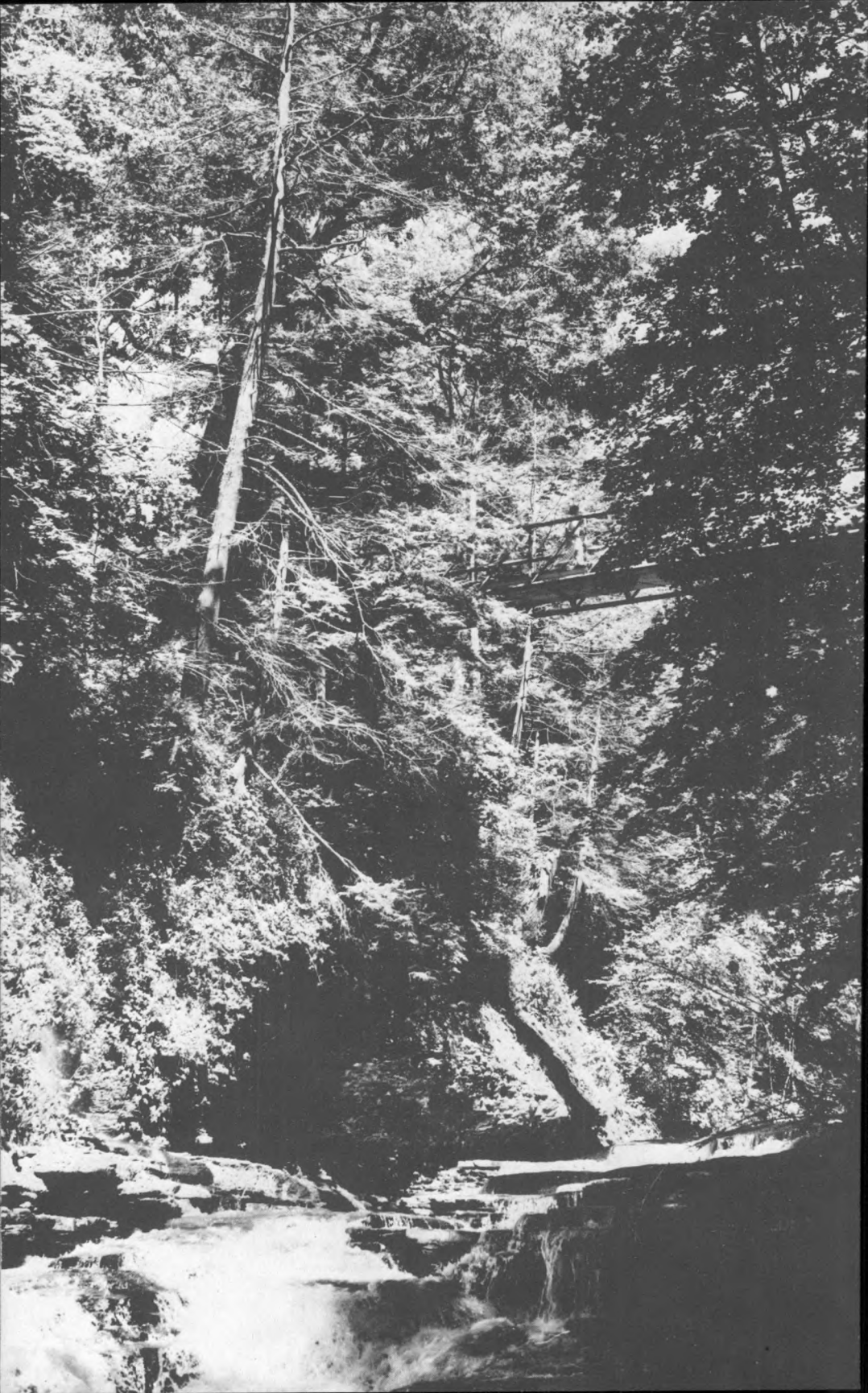
Saturday, March 22
Monday, March 31
Saturday, May 10
Monday, May 19
Wednesday, May 28
Monday, June 2

In enacting this calendar, the University Senate has scheduled classes on religious holidays. It is the intent of Senate legislation that students missing classes due to the observance of religious holidays be given ample opportunity to make up work.

Important Dates 1974-75*

College of Arts and Sciences

	Fall Term	Spring Term
Registration, new students	August 29, 1974	January 23, 1975
Registration, rejoining students	August 30	January 23
Registration, continuing students	August 30	January 24
Instruction begins	September 2	January 27
Deadline for submitting Independent Major requests (first meeting)	September 13	February 7
Last day for dropping or adding courses without fee	September 20	February 14
Last day for electing the S-U grading option	September 20	February 14
Last day for requesting permission to graduate at end of current term	September 20	February 14
Deadline for application to the College Scholar Program		February 28
Deadline for submitting Independent Major requests (second meeting)	October 18	March 14
Last day for dropping courses with fee	October 25	March 21
Spring recess		March 22-31
Preregistration for spring term courses 1975	October 21-November 1	
Last day for requesting a leave of absence for the current term	October 28	
Last day for requesting permission to study <i>in absentia</i> the following term	November 1	April 1
Last day for requesting withdrawal for current term	November 4	
Thanksgiving recess	November 27-December 2	
Deadline for requesting internal transfer to the College of Arts and Sciences for next term	December 1	August 1
Instruction ends	December 7	May 10
Final examinations begin	December 13	May 19
Final examinations end	December 21	May 28
Commencement Day	January 22	June 2



Cornell University

College of Arts and Sciences

The College of Arts and Sciences at Cornell reflects the rich history and diverse aims of the University itself. It is a liberal arts college, a university college, and a graduate school and research center.

As a liberal arts college it has a double role. It offers students the opportunity to increase their understanding of themselves and the world in which they live and it prepares them, if they have the desire and talent, for further, more specialized study. About two-thirds of its graduates go on to graduate school.

In its second role, as a university college, the College of Arts and Sciences is responsible for the general education of all Cornell students. This is a taxing commitment, but a valuable one because meeting it helps to create and preserve a single academic community in what would otherwise be a loose collection of separate schools. It is a source of strength and diversity that is not available to the isolated and solely undergraduate college. A university college, able to draw upon the more highly specialized knowledge and facilities of its professional fellow colleges, is able to combine liberal and practical studies, and to offer a curriculum of greater depth and breadth than it otherwise could.

The College is also, and this is its third role, a graduate school and research institute. As such, it attracts a faculty with high professional standards and achievements, and demands first-rate facilities. Undergraduate teaching and scholarship are not separable activities; only a professionally alert faculty can bring to its teaching a sense of discovery and excitement.

It is this combination of functions that gives the College of Arts and Sciences—a moderate-sized liberal arts college in the middle of a large and diversified University—its distinctive character.

urged upon them by the distribution requirement itself. There is no guarantee that anyone will receive a well-rounded liberal arts education merely by fulfilling a distribution requirement, but it does encourage at least a minimum involvement in the areas with which any educated person should be acquainted. When students explore new subject matters they are, in effect, exploring latent interests and abilities.

As students complete introductory courses, they lay the foundation for more advanced work in particular fields. During their fourth term (or earlier), as their interest comes to a focus, they choose the subject in which they wish to concentrate, aiming at depth and competence. The usual pattern is for them to devote roughly half the work of the last two years to a major program. Though certain core courses are usually prescribed in any major, there still remains a broad spectrum of choice which includes related courses in other departments or even in other divisions of the University. Some departments offer two major programs: one, a program of intense and sophisticated preparation for postgraduate study; the other, a more general program for the person who wants a liberal education with some specific concentration, but whose interests are not professional.

Almost all departments have a demanding and rewarding honors program for those who have demonstrated particular ability during their first two years. Most departments also have courses which permit students to pursue their independent interests under the tutorial supervision of faculty members. The College also offers experimental courses that cut across traditional subject lines, explore different methods, and test new ideas. The courses of study offered by both departments and special interdisciplinary programs are described in detail in the pages that follow.

The Curriculum

The College's curriculum gives students an opportunity for breadth, experiment, and discovery, especially during the first two years. A certain diversity is

Admission

The College of Arts and Sciences attempts to select a freshman class whose members are individually able to take full advantage of the educational oppor-

tunities afforded by the College and by the University. Because those opportunities are rich and diverse, no single criterion is employed. The College selects primarily for what Aristotle called the "intellectual virtues," and it especially considers academic ability, intelligence, creativity, independence, maturity, and promise of mental growth. It also seeks a class with a wide range of other qualities and characteristics, and it honors those young men and women with highly developed special interests and talents. Furthermore, the College is continuing its effort to identify and admit students whose schooling and family background indicate that the standard measures are a poor index of their abilities.

It is the policy of Cornell University actively to support equality of educational opportunity. No student shall be denied admission to the University or be discriminated against otherwise because of race, color, creed, religion, national origin, or sex.

Entrance Requirements

Applicants must have completed a secondary school program giving satisfactory preparation for the work of the College. *Sixteen units of entrance credit are required: four years of English; three years of college-preparatory mathematics* (the increasing need for mathematics in the social, biological, and physical sciences makes it desirable for students interested in these areas to be prepared to take a calculus course upon entering the College; these students should have studied advanced algebra and trigonometry during their secondary school years); *and three years of one foreign language, ancient or modern.* (Foreign language preparation is particularly important in this College. Students who offer two years or less of a foreign language, but who have school records of otherwise high quality, should not hesitate to apply; however, they should send a letter with their application explaining the deficiency.) The remaining units should be chosen from laboratory sciences, social studies, and further work in mathematics and foreign language. Whenever possible, these sixteen units should be supplemented by courses in similar academic subjects. *Exceptions to these requirements may be granted when the applicant's record is unusually promising.* For example, students whose interests and academic and extracurricular achievements are in the fields of creative and performing arts should not hesitate to apply because they have not taken a standard academic curriculum. Demonstrated unusual strength in one area may offset weakness in another.

Each candidate for freshman admission is required to take either the College Board Scholastic Aptitude Test (SAT) of the College Entrance Examination Board (CEEB) or the American College Testing Program (ACT) tests, and either the College Board Achievement Test in English Composition or the College Board Literature Test and two other College Board Achievement Tests in different subjects. The required tests should be taken *no later than the January test date* during the candidate's senior year. Students should request that the College Entrance

Examination Board and/or the American College Testing Program send their results to the Office of Admissions, 247 Day Hall, Cornell University.

Although an achievement test in a foreign language is not required, candidates should, before entering Cornell, take the College Board Achievement Test in any language they have taken in high school and expect to continue in the College. Because the score on such a test is needed for placement in language courses, the test should be taken as late in the *senior year as possible*. Candidates should also keep in mind the further language requirement which they must meet. If they will be entering with two or more years of a language they wish to use toward fulfilling this requirement (see p. 14), they should take the achievement test in that language even though they do not plan to continue it in college. This score will determine whether in the tested language they have met part of the requirements for graduation.

Examination credit based on the results of the CEEB College Level Examination Program (CLEP), and the United States Armed Forces Institute (USAFI) will be determined by individual Cornell departments and awarded to enrolled degree candidates. Results of any or all of the examinations may be used as evidence for admission. No more than sixty hours of advanced standing credit will be counted toward the degree on the basis of these examinations or any other college work, or any combination thereof. Please see the Advanced Placement section (pp. 19-22 for additional information).

Application

Application forms may be obtained from the Office of Admissions, 247 Day Hall, and all communication concerning admission should be directed there. Except as noted below, freshman applicants are considered for admission for the fall term only. Freshman applications must be returned to the Office of Admissions by January 15. Transfer application deadlines are: for consideration for fall term admission, April 15; for consideration for spring term admission, November 1. Special students' and part-time candidates' applications must be submitted by: December 1 for consideration for spring term admission; July 1 for consideration for fall term admission.

Spring Term Freshman Admission

A limited number of freshman candidates will be offered admission to the College for the spring term. Most of the spring term freshmen will be selected from the waiting list that is compiled for the previous fall term and will be notified by July 1 of their admission for the spring term. This program should be especially attractive to those candidates who wish to defer college entrance for a semester in order to travel or work. A student accepted for the fall term who wants to defer entrance until the spring term should submit a written request within a few days of receiving an acceptance for admission.

Delayed Enrollment

The College recognizes that some students may benefit from time away from formal schooling. To delay one's entrance by as many as four semesters, freshman candidates must inform the University Office of Admissions by May 1 that they accept the offer of admission and wish to petition for a delay. The request should specify the student's plans and state for how many semesters the delay will be. If the request is approved the student will remit, as evidence of the intention to matriculate, a \$50 registration fee and will then be assured that a place is reserved for a specified future freshman class.

Students who wish to enroll in the College after an approved delay are required to inform the College of their intention at least six weeks before the beginning of the semester.

Early Admission

A few students request admission after only three years of secondary school. Some of these students receive high school diplomas for completing all requirements in three years; others leave school lacking one or a few credits. The Admissions Committee looks most favorably on those students who have exhausted their secondary school offerings and who show the maturity to profit from entering college early. Those students who have the opportunity to take advanced, accelerated, or college-level courses during their fourth year in secondary school are usually encouraged to do so unless this action would inhibit the development of some other academic strength. Students applying for early admission are encouraged to write or to make an appointment for a personal interview on campus to discuss their reasons and plans.

Early Decision

The College of Arts and Sciences offers an Early Decision Plan to a limited number of highly qualified high school seniors. Students interested in the Plan submit the Application for Admission-Form 1 and Early Decision Request Form part I (to be completed by candidate) and part II (to be completed by counselor), by November 1 of the senior year. Candidates are notified of the University's decision, including financial aid, by the middle of December. Only those students, whose choice of college is clearly Cornell and whose past academic performance, scores on the Scholastic Aptitude Test of the College Entrance Examination Board (taken no later than November of the senior year) or the American College Testing Program Examination (taken no later than October of the senior year), personal qualities, and school recommendations are all superior, are likely to qualify for favorable consideration. Students who are eligible for graduation from high school in January after seven semesters may choose, as part of their plan of acceleration, to apply during their last semester as Early Decision candidates for spring term freshman

admission. All qualified candidates should write to the University Office of Admissions for additional information about the Early Decision Plan.

Early Evaluation Plan

The College of Arts and Sciences participates in the Ivy League's Early Evaluation Plan. All freshman applicants will receive, before February 15, a rating of "likely," "possible," "unlikely," or "insufficient evidence for evaluation" on their admissibility for the fall term. *An application must be complete, except for the seventh term report and the Achievement Test results, by January 6 to receive a rating of "likely," "possible," or "unlikely."* For further information, please see the explanation of the Early Evaluation Plan included with the application form.

Transfers

The College of Arts and Sciences encourages transfer applications, including those from veterans as well as from students who are completing Associate of Arts degree programs in junior or community colleges. All transfer applicants will be expected to have had preparatory work equivalent to that prescribed for Cornell students. Additionally, an applicant's progress in meeting the distribution and language requirements will be examined carefully. Only those students seeking sophomore or junior status will be considered for transfer admission; transfer students must have completed at least one full year of college work before matriculation in the College of Arts and Sciences. Furthermore, transfers to Cornell must spend at least three regular semesters and two Cornell summer sessions in residence, and complete at least sixty Cornell credit hours to be eligible for a degree.

Normally, action on completed transfer applications will be announced by January 1 for spring term admission, and June 15 for fall term admission.

For further instructions transfer applicants should refer to the brochure *Transfer to Cornell*.

Students seeking admission to the College of Arts and Sciences from another undergraduate division of Cornell must first complete a term of successful study in that division before a decision can be made on their internal transfer application. Engineering applicants must spend one year in their College before applying.

Transfer Credit

The faculty of the College evaluates the course credits received from either another college of Cornell University or from any other accredited institution of collegiate rank to determine the number of credit hours a student may apply toward the degree of Bachelor of Arts. Tentative credit evaluations are normally provided to external transfers at the time of their notification of admission. Ordinarily total transfer credits may not exceed sixty hours, and no more

than twenty hours may be in courses not commonly given by the College of Arts and Sciences. In order to obtain the degree of Bachelor of Arts, a student must have been in residence at least three regular semesters and two summer sessions in the College of Arts and Sciences and typically during that time must have successfully completed at least sixty hours of courses. (See also Residence and Credit p. 13.)

Special Students—Junior Year at Cornell

Each year a number of Special Students are enrolled in the College. These students typically enroll for a normal course load each semester, and are usually limited to two successive terms of residence. Special students are expected to take the major portion of their course work in the College of Arts and Sciences. The students may be studying *in absentia* from their parent college or they may be college graduates or undergraduates with specific academic reasons for studying at Cornell on a nondegree basis. They are not candidates for a Cornell degree.

Special Students in the Junior Year at Cornell Program can study in the College in order to expand their undergraduate educational opportunities. This Program is especially attractive to students approaching junior status at undergraduate colleges which do not offer the variety of courses available to Cornell upperclassmen. These students are subject to the same conditions of enrollment as regular special students.

Part-Time Student Program

The College has a part-time degree program for Ithaca area adult residents who are over the normal college age. (The guideline is twenty-three years of age or older.) The program is designed as a service for locally employed residents and their spouses.

Applicants to the Program are expected to present the normal admissions credentials, although exceptions can be made. Up to sixty credit hours of previous college work may be accepted as transfer credit toward the Cornell degree, but enrollees may begin as freshmen. Once registered in the program, the part-time student is expected to make continuous progress toward the completion of degree requirements. Normally, up to ten hours of credit may be taken each semester. Transfer from full-time to part-time status, or vice versa, is possible only with the permission of the Committee on Academic Records and the College's admissions director.

Part-time students will be required to complete all normal academic degree requirements of the College with the exception of the College's full-time residency stipulation.

Special Opportunity Programs

Cornell University administers a variety of special opportunity programs designed to provide financial assistance and other forms of assistance to low-income, minority students and others meeting program guidelines. Special programs exist to aid in increasing representation of students from minority groups present in New York State who historically have been underrepresented in higher education. For details, prospective students should consult the *Guide for Candidates* which accompanies each undergraduate application or will be sent by the Office of Admissions, 247 Day Hall, Cornell University, upon request.

Scholarships and Financial Aid

The Office of Scholarships and Financial Aid, 203 Day Hall, administers scholarship funds available to students in the University. Some scholarships are open to any student in the University; others are open only to students in the College of Arts and Sciences. An entering student who wishes to apply for financial aid should complete the application form which accompanies the application for admission.

New York State Residents

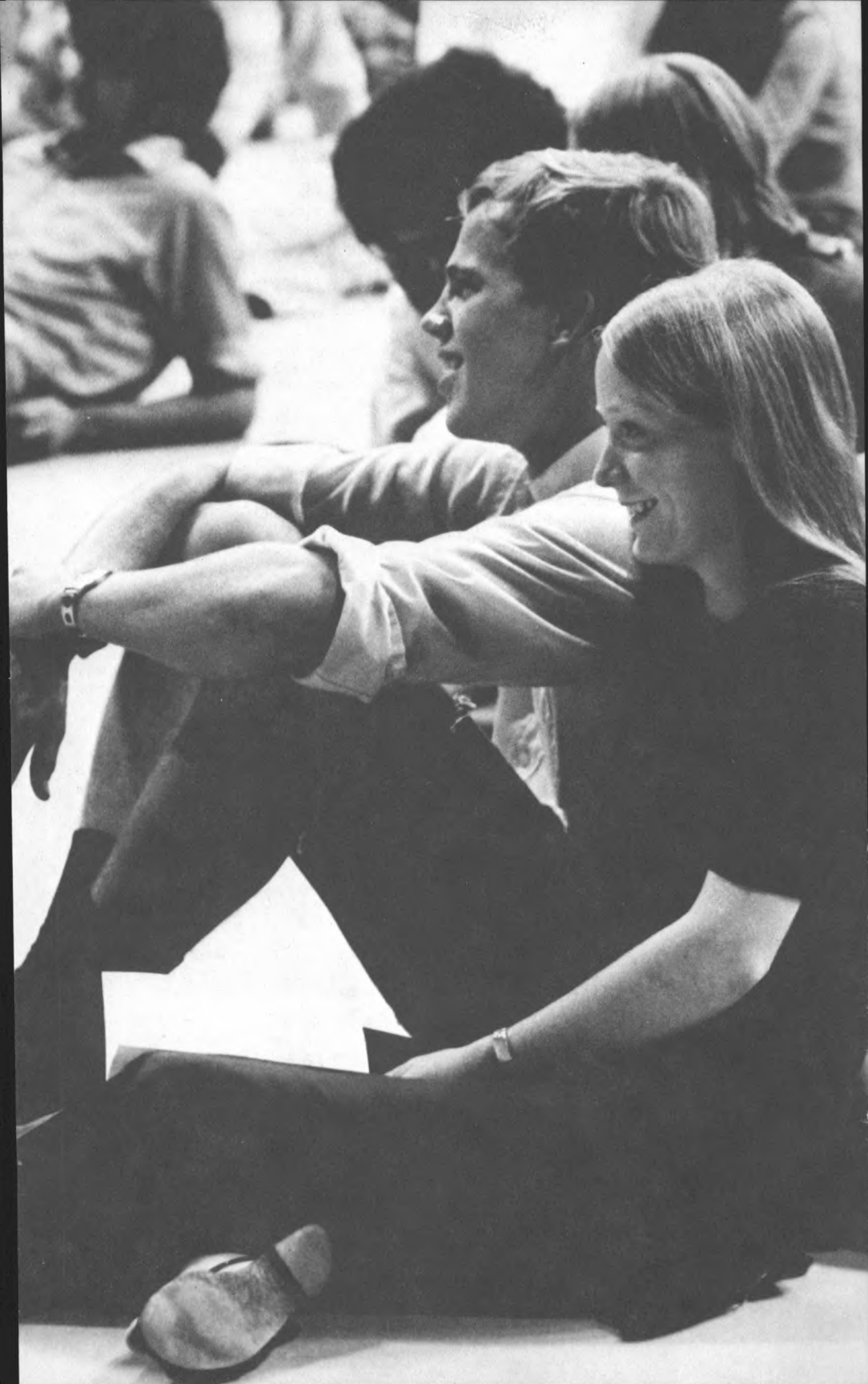
New York State offers various types of financial assistance to qualified college students who are state residents. It is very important that students seeking such aid obtain full information and meet each application deadline promptly.

Applications for the Scholar Incentive Program should be filed prior to July 1 before the academic year but will be accepted up to June 30 at the end of the academic year. Annual application is required.

Candidates for Regents Scholarships should seek directions from their high school principal and/or guidance counselor. Information may be obtained by writing to the Regents Examination and Scholarships Center, New York State Education Department, Albany, New York 12224. Students seeking New York State guaranteed loans should obtain details from their local participating bank.

Advising

Discussions of values, academic disciplines, and professional goals are a continuous process in the lively intellectual setting of a college of arts and sciences. Students will want to seek information, try out ideas, and set a life course by talking with teachers, peers, and staff. Students in this College may seek advice



from anyone with whom they are comfortable and who is knowledgeable.

There is a distinction between the needs of freshmen and upperclassmen for academic advice, and a distinction between the ways available to them for filling these differing needs. Freshmen and sophomore transfers need free rein to explore and experiment. The junior is expected to focus his or her studies around a discipline or to develop an interdisciplinary major around a central theme.

Freshmen and transfers entering as sophomores will receive individual attention at the time of their first registration with the College. Each will be invited early in Orientation Week to meet with faculty representing all departments of the College. Students will have the opportunity to approach each department in which they might wish to study and seek advice about placement, ways to prepare for further study in that field, and long-term goals of that discipline. All new students will also be given an appointment with a member of the staff of the Academic Advising Center to review their total program before proceeding to the Direct Registration Carnival for new students.

Following their first course registration, students may seek advice throughout the year at department advising centers. At subsequent registration and preregistration periods, underclassmen may confer with faculty, student advisers, and the staff of the Academic Advising Center for help in planning programs for the next year. Many sources of help are available, including this *Announcement* and the *Academic Guide* which is sent to new students. The initiative in seeking advice must come from the student.

Freshmen who wish to be assigned a faculty adviser may come to the Academic Advising Center after classes begin and make a formal request for an adviser. They will be referred to a professor who takes particular pleasure in advising. There is nothing obligatory in this relationship, and it can continue as long as it is fruitful.

Second-term sophomores must approach the department of their choice, ask to be accepted to that major, and be assigned a major adviser. Some will find that an interdisciplinary major best suits their goals (see Independent Major Program p. 27).

Juniors must have been accepted by an academic department or special program and assigned a major adviser before they can register. Junior transfers will have been accepted to a major as a condition of acceptance to the College, and will have been assigned a major adviser before they matriculate. The major adviser is the person who declares that the graduating senior has fulfilled major requirements for the degree.

It is the upperclassman's responsibility to meet with his or her major adviser during preregistration and registration to discuss the student's program for the coming term, and to discuss as much more as seems valuable to them both. The major adviser's signature on the course registration schedule signifies consent. The adviser's consent is also required

for exceptions, such as *in absentia* study, acceleration, summer school, and general petitions.

The Academic Advising Center, 137 Goldwin Smith Hall, serves as coordinator of and supplement to faculty advising. The Center's advisers are prepared to discuss the underclassman's academic program, problems with studying, and special programs; to investigate graduate professional schools; and to weigh the merits of a leave of absence. It is a place to bring notice of problems within the College and to note approval. The staff in the Academic Advising Center is also ready to suggest resources which can help students with all manner of problems other than academic ones.

Registration and Preregistration in Courses

Registration in courses follows different procedures for new students (incoming freshmen and students transferring from other institutions), continuing students (enrolled in the College of Arts and Sciences the previous term who were not suspended or on a leave of absence), and rejoining students (returning to the College from a leave or suspension).

All academic courses of the University are open to students of all races, religions, ethnic origins, ages, sexes, and political persuasions. No requirement, prerequisite, device, rule, or other means shall be used by any employee of the University to encourage, establish, or maintain segregation on the basis of race, religion, ethnic origin, age, sex, or political persuasion in any academic course of the University.

Incoming freshmen and transfers from other institutions will be notified early in July by the Academic Advising Center, 137 Goldwin Smith Hall, about registration procedures. Their registration date can be found in the Academic Calendar under "new students." New students do not preregister for the courses to be taken in their first term.

Continuing students should have preregistered for courses the previous term. Preregistration dates for spring term 1975 are October 21-November 1, 1974.

If students do not preregister for a term but wish to continue in the College, they may, upon payment of a \$10.00 fee, submit a schedule and register up to the end of the first week of classes. Students must petition for permission to register later than the end of the first week of classes. If they fail to register and do not apply for a leave by the end of the first two weeks of classes, students will be withdrawn from the College. (See p. 25 for information about leaves and withdrawals.)

Students rejoining after a regular leave of absence should notify the Academic Advising Center, 137

Goldwin Smith Hall, of their intention to rejoin no later than one month prior to the beginning of the term. Students who were suspended or on conditional leaves of absence may rejoin only in accordance with the College's special instructions. Rejoining students do not preregister for courses.

Students must register with both the College and the University. Preregistration of continuing students is not registration.

Registration for fewer than twelve hours a term, except by petition, will result in unsatisfactory academic standing. Students may not register for more than eighteen hours a term except by petition. Petitions are available in the Academic Advising Center, 137 Goldwin Smith Hall. An average of fifteen hours a term is considered satisfactory progress toward a four-year degree. Military training and physical education do not count for credit toward the A.B. degree (see Credit p. 13).

Changes in preregistration may be made without fee during the first three weeks of classes. Add-drop change slips are available in 134 and 137 Goldwin Smith Hall. However, changes are contingent upon space being available in a course and upon whether work missed can be made up. It is necessary, therefore, for students to consult the appropriate professor before discontinuing a course in the expectation of taking another one. After the first three weeks of classes, changes in registration will be subject to a \$10 fee. Except in unusual circumstances, a course should not be added after the first three weeks of classes. After October 25, 1974, for the fall term 1974 and March 21, 1974, for the spring term 1975, a course may be discontinued only for medical or other compelling personal or academic reasons.

Requirements for Graduation

Status of Requirements

College requirements are often subjected to critical review by students, faculty, and staff. Occasionally, requirements are changed to reflect new conditions and new thoughts. Therefore, for the most up-to-date interpretation of requirements, interested students should review the quarterly *Arts College Bulletin*, or write to or telephone the Academic Advising Center, 137 Goldwin Smith Hall, 607/256-5004.

College requirements include (1) residence, (2) credit, (3) Freshman Seminars, (4) foreign language, (5) distribution (four groups), and (6) the major.

A student may not use the same course to fulfill more than one College requirement, with three exceptions. First, a course may be used for fulfillment of a College requirement and for fulfillment of a major requirement, provided the major department agrees. Second, a one-semester course in foreign literature that is acceptable as a means of achieving

proficiency in that language and also as partial fulfillment of the distribution requirement in the humanities may be used for both purposes. Third, foreign students who take English 211-212 may fulfill both the Freshman Seminars requirement and the humanities or expressive arts distribution requirement by taking two Freshman Seminars offered by one of the following departments: English, History, History of Art, Classics, Philosophy, Romance Studies, Russian Literature, German Literature, and Comparative Literature. Courses used to fulfill College requirements may be taken on an S-U basis (see Grades and Academic Standing p. 4).

Residence

Candidates for the degree of Bachelor of Arts normally spend eight terms in residence. By procedures described in the section on Acceleration (p. 22), students with advanced placement credit or other additional credits may graduate after six or seven terms. Students other than transfers are normally expected to earn at least ninety hours of credit during their terms of residence at Cornell. Students who transfer are required to spend a minimum of three regular terms and two Cornell summer sessions in residence, earning at least sixty hours of credit during that time. Students who enter with less than the usual preparation for college work are sometimes permitted to spend more than eight terms in residence with the approval of the Committee on Academic Records.

Credit

To receive the degree of Bachelor of Arts the student must earn at least 120 hours of credit of which 100 hours must be in courses taught in the College of Arts and Sciences. Some courses taught in other colleges of the University may be counted as part of the 100-hour requirement. These include courses which the student's major adviser specifies as forming an integral part of the major program. For information about specific courses, the student may consult the Dean's Office, 142 Goldwin Smith Hall.

The College does not grant credit for all courses offered by the University. Courses in typing, shorthand, remedial reading and writing, physical education, and military science are among those for which credit toward the degree is not given.

The student may elect to repeat a course. If the instructor certifies that the course content has been changed appreciably, credit may be granted a second time; if the course content has not changed, the course may be repeated in order to obtain a better grade, but without credit the second time. Courses that the student has failed may be repeated for credit. Information about this option may be obtained at the Office of Recording and Scheduling, 134 Goldwin Smith Hall.

Advanced Placement Credit

See pp. 19-22.

Transfer Credit

See p. 9.

Summer Session Credit

Students may earn credit toward the degree by completing courses in summer session at Cornell or at other colleges. Summer session study should be used as a supplement to study during the academic year and should not reduce the number of terms given to upperclass work. Upperclassmen should consult their advisers regarding summer study plans.

Credit for non-Cornell summer courses must be approved by the chairman of the appropriate Cornell department. The Dean's Office, 142 Goldwin Smith Hall, can supply forms and information.

Entering students, who wish to receive credit toward the degree for courses completed in summer session at Cornell or elsewhere, should have transcripts sent to the Academic Advising Center, 137 Goldwin Smith Hall, during the summer before matriculation.

Credit by Examination

See Admission p. 7 and Advanced Placement pp. 19-22.

Freshman Seminars

Students are required to complete two one-semester courses in the Freshman Seminars, or writing, Program. Normally the requirement is met during the first year. A course used to meet the requirement may not be used to satisfy the distribution or the language requirements. Superior College Board Achievement and Advanced Placement test scores do not constitute exemption, but they may place a student in intermediate courses (e.g. English 270 or 272) which will satisfy the requirement. Foreign students who take English 211-212 may meet the requirement by taking two of the listed seminars offered by one of the humanities departments (English, History, History of Art, Classics, Philosophy, Romance Studies, Russian Literature, German Literature, Comparative Literature, Medieval Studies). Foreign students will thereby have also satisfied the distribution requirement in the humanities or expressive arts.

Each seminar is limited to twenty students and is designed both to help students improve their writing and to introduce them to a field of study. Some courses (creative, expository, and autobiographical writing) deal almost exclusively with writing; all require frequent papers; all stress the importance (and try to assist the development) of clear, forceful prose.

Each semester there will be over one hundred sections of about twenty-five different courses drawn from fifteen fields: Africana studies, anthropology, classics, comparative literature, English composition, English literature, French, German, government, history, history of art, medieval studies, philosophy, Russian, and Spanish. Complete descriptions and instructions for enrollment will be available before registration each semester. Inquiries should be addressed to the Office of Special Programs, 159 Goldwin Smith Hall.

Foreign Language

The language requirement can be met by attaining Qualification in two languages, or by attaining Proficiency in one language.

Qualification in a modern foreign language can be achieved in any of four ways: (a) by successful completion of course 102, 134, or, in the case of transfer students, any first-year two-semester college course; (b) by a score of 560 or more on the reading portion of the College Entrance Examination Board (CEEB) Achievement Test; (c) by special examination administered by staff members of the Department of Modern Languages and Linguistics in cases where no CEEB tests exist; (d) by three or more years of high school study in the language.

Proficiency in a modern foreign language can be achieved in either of two ways: (a) by successful completion of a three-hour course at the 200-level or above for which Qualification, by (a), (b), or (c) above; is a prerequisite (excluding Freshman Seminars) or, in the case of transfer students, any advanced course in language or literature in the original. Note however, that a student who has obtained Qualification by virtue of three or more years of high school study cannot be placed in a 200-level course unless he or she has received a score of 560 or above on the CEEB test; (b) by advanced placement credit (see p. 20) equivalent to (a).

Qualification in Semitic and Classical languages can be achieved in any of four ways: (a) successful completion of Semitics 200 (Hebrew), Semitics 210 (Arabic), Greek 103, Latin 106 or 108; or, in the case of transfer students, any three-semester college course; (b) by a score of 560 or more on the reading portion of the College Entrance Examination Board (CEEB) Achievement Test or, in Hebrew, a CEEB score of 500 or a Regents' score of 90; (c) by special examination administered by staff members of the Departments of Classics or Semitic Studies in cases where no CEEB tests exist; (d) three or more years of high school study in one or more languages.

Proficiency in Semitic and Classical languages can be achieved in either of two ways: (a) successful completion of Semitics 201 (Hebrew), Semitics 211 (Arabic), Greek 203, any two- or three-hour Latin course beyond 108; or, in the case of transfer stu-

dents, any advanced course; (b) advanced placement credit equivalent to (a). (See p. 20)

Special Cases

If the language being offered for Qualification or Proficiency is not taught at Cornell, the student may arrange for examination through the Academic Advising Center.

Students entering with three or more years of high school language study will be required to take placement examinations. They may not automatically enter 200-level courses. For information on placement into language courses, see p. 20.

A native speaker of a language other than English may request exemption from the language requirement. His proficiency must be certified by an appropriate member of the faculty.

Distribution

Students are required to complete a minimum of six hours of related course work in four areas: a minimum of six hours (two courses) each in Group I, Group II, and Group III, and six hours in a fourth group which may be mathematics or a subgroup not elected in fulfillment of the first three requirements. The same course may not be used to satisfy more than one distribution requirement (with the exceptions noted on p. 13). Normally, the two courses must be taken in the same department. The distribution requirement provides an opportunity to explore new areas in order to give breadth to the student's education. Most students complete at least the major portion of this requirement during their first two years.

Students may fulfill one of the following distribution requirements—social sciences, history, humanities, expressive arts—with two Africana Studies and Research Center courses from the appropriate group. Students, other than Africana Studies and Research Center majors, may petition to satisfy a second of the four requirements (listed above) with Africana Studies and Research Center courses if they are carrying a heavy program of courses given by the Center. In this case too, the courses must be in the same area as the distribution which they satisfy. Africana studies courses cannot be used as a substitution for the natural sciences requirement. Africana studies language courses and courses used to satisfy the Freshman Seminars requirement may not be used to fulfill a distribution requirement.

The specific courses which satisfy each of the four groups of the distribution requirement are listed below.

Group I. Physical or Biological Sciences

a. Physical Sciences. *Astronomy:* 101-102 or 111-112. *Chemistry:* 103, 207, or 215 and 104, 208, or 216. *Geological Sciences:* 101-102. *Physics:* 101-102, 201-202, 207-208, or 112-213, or the first term

of any of these sequences followed by the second term of another. Physics 201-202 is particularly designed for students who do not expect to do further work in any branch of science.

b. Biological Sciences. 101, 103 and 102, 104; or 109-110; or 105-106; or advanced placement with a score of 4, plus Biological Sciences 107; or advanced placement with a score of 5.

Group II. Social Sciences or History

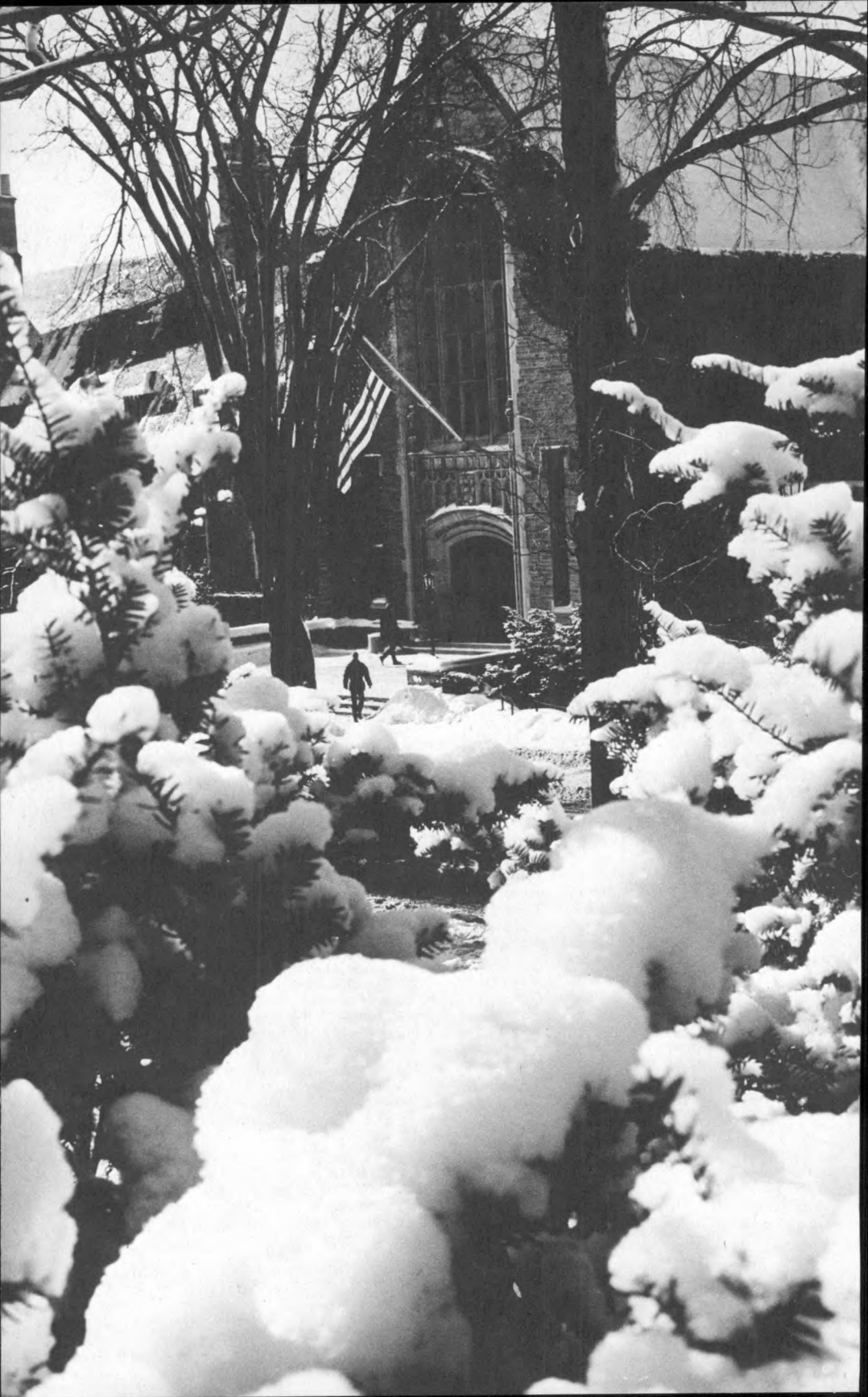
a. Social Sciences. *Africana Studies:* any two of 171, 172, 231, 290, 301, 302, 344, 346, 352, 484, 485. *Anthropology:* any two courses totaling six hours (crosslisted courses not included). *Archaeology:* 100 with any one of the following, Anthropology 150, 303, 350, 354, 355, 356, 451, 452, 453, 454, 493, 494, 664, 666, 667. *Economics:* 101-102. *Government:* any two of 111, 131, 161, 181; or one of 111, 131, 161, 181 followed by a 300-level course in the same area. *Linguistics:* 101-102 or a combination of Linguistics 101 and any other course for which Linguistics 101 is a prerequisite. *Psychology:* any two courses totaling six hours (Human Development and Family Studies 115 and Rural Education 110 may be counted). *Sociology:* any two courses totaling six hours. *Center for International Studies:* any two courses totaling six hours.

b. History. *Africana Studies:* any two of 203, 204, 231, 283, 344, 360, 361, 475, 490. *History:* any one-year sequence 100- through 300-level courses.

Group III. Humanities or Expressive Arts

a. Humanities. *Africana Studies:* any two of 219, 321, 322, 422, 465, 492. *Archaeology:* 100 with any one of the following, Classics 220, 221, 320, 629, 630. *Asian Studies:* six hours of any 300-level courses listed under Asia, Literature and Religion which form a sequence. *Classics:* (a) any two courses in Greek beginning with 201 or in Latin beginning with 207 that form a reasonable sequence; or (b) any two of 119, 120, 200, 220, 221, 222, 224, 225, 236, 300, 320, 324, 331, 332, 336, 339, Comparative Literature 359. *Comparative Literature:* any two of the 200- or 300-level courses in literature which form a sequence. *English:* any two courses at the 200 level or above, other than those numbered in the 80s and 479, 496 and 678. *Modern Foreign Literatures.* *French Literature:* 201 and 202, 222 or any 300-level course. *German Literature:* any two courses at the 200 level or above. *Italian Literature:* 201-202. *Spanish Literature:* any two of 201, 315, 316. *Russian Literature:* any two courses at the 200 level or above. *Philosophy:* any two courses except (a) Philosophy 100 if used in satisfying the Freshman Seminars requirement, and (b) a combination of two formal logic courses such as 231, 431, 432, and 436. *Semitic Literature:* any two literature courses (including the biblical law course); or any two philosophy courses; or any two language courses at the 300 level or above.

b. Expressive Arts. *Africana Studies:* any two of 137, 138, 284, 285, 303, 465. *Archaeology:* 100



with any one of the following, History of Art 210, 215, 315, 316, 322, 323, 324, 415, 431, 488. *English*: any two courses at the 200 level or above numbered in the 80s. *History of Art*: any two courses at the 200 level or above. *Music*: any six hours, with a maximum of three hours in courses from 331 through 338, and 441 through 444. *Theatre Arts*: any two three- or four-credit courses.

Group IV. Random Distribution

One of the subgroups not used in satisfaction of group I, II, or III may be used, or *Mathematics*: any six hours not including more than one course from among 105, 107, 303; Computer Science 101 may be used for three of these hours. Orientation 110, College of Agriculture and Life Sciences, may not be used.

The Major

Before preregistering for the junior year students must be accepted as a major by a department or a special program. They must satisfy the specified requirements of the major as listed by the major department. A department may refuse to continue as a major advisee a student whose performance is not meeting department standards. Some majors require courses in related subjects outside the major department. Some require courses outside the College; in such cases those hours are counted as part of the 100 credit hours in the College of Arts and Sciences required for graduation. Independent majors fulfill the requirements outlined for them by the Independent Major Board (see Independent Major Program p. 27).

Physical Education

During the first four terms of residence, students must complete the University requirement of four terms of work in physical education. The courses in physical education are described in the publications which the Department of Physical Education and Athletics makes available to students at registration. Students are automatically registered for physical education by that department until the requirement is completed.

Possible Excuses and Postponements for Physical Education. (1) Medical: The Academic Advising Center must receive a recommendation from Gannett Clinic. The Clinic may recommend either a postponement, an excuse for the term, or an exemption from the requirement. (2) Self-help employment: If the student is working at least twenty hours a week and can prove financial need, he or she may apply to the Office of Scholarships and Financial Aid for an excuse for that term. (3) Military service: veterans are excused from fulfilling the requirement. (4) Age: Students twenty-two years of age or more when entering the University are excused from fulfilling the requirement. (5) Mothers with young children may ask to be excused from fulfilling the requirement at

the Academic Advising Center. Students should inquire at 137 Goldwin Smith Hall regarding any possible excuse or postponement of the requirement.

Electives

Students must complete fifteen hours of courses not offered in satisfaction of requirements and not given by the department supervising the major. The major adviser must certify that a student has met this requirement.

Petitioning

Students who, because of unusual circumstances, wish to petition for an exception to the requirements should consult a member of the Academic Advising Center, 137 Goldwin Smith Hall.

Grades and Academic Standing

Passing grades for courses range in a descending order from A+ through D-. F is a failing grade. No credit toward graduation will be given for a course in which a failing grade has been received, unless the course is repeated and a passing mark received. Final grades A+, A, A- mean *excellent to very good*; B+, B, B- mean *good*; C+ and C, mean *satisfactory*; C-, D+, D, D- mean *marginal*; F means *failing*—unacceptably low level of knowledge and understanding of subject matter, severely limited perception and/or originality.

S-U Grades

A student may elect (within the first three weeks of the term) to receive a grade of S (satisfactory) or U (unsatisfactory) instead of one of the letter grades (A+ through F) provided that the instructor is willing to assign such grades. A grade of S is equivalent to a grade of C- or higher; a grade of U is equivalent to any grade below C-. S means the student receives the credit specified for the course; U means no credit will be given. Unlike the grades A+ through F, the grades S and U are not used in calculating a student's grade average.

Courses which will count toward the satisfaction of the student's major requirements should not be taken on an S-U basis unless the department grants permission. A student may elect the S-U option in courses used to satisfy distribution and language requirements provided that such courses do not also count toward the student's major requirements or serve as prerequisites for admission to a major field. Students who intend to apply to graduate school or

for transfer to another college are advised to use the S-U option sparingly.

There is no limitation on the number of courses each term in which a student may elect the S-U grade option. However, within the 120 hours required for the degree, a minimum of eighty hours must be in courses for which the student has received a letter grade.

Students who elect the S-U option in a course must file a permission card with the Scheduling Office, 134 Goldwin Smith Hall. No change in grading option can be made after the first three weeks of any term.

Some courses have been approved by the College to be offered exclusively on an S-U basis. Others are offered only on an A+ through F basis. Most courses, however, offer the option of both grading systems.

Incomplete Grades

The grade of *incomplete* signifies that the student failed to complete a course for reasons acceptable to the instructor. Each instructor retains complete discretion regarding the circumstances in which incompletes will be given. The student must have substantial equity in the course: the remaining work can be completed without further registration and the student has a passing grade for the completed portion.

When a grade of *incomplete* is reported, the instructor will state what work the student must complete, when it must be completed, and what grade should be awarded if the work is not completed by that date. If a grade is not assigned, the *incomplete* will be frozen. Unless the instructor stipulates otherwise, the student will be allowed one term plus one summer to make up the work.

The grade of *incomplete* remains on the student's record permanently even after the final grade is recorded.

Special Grading Arrangements

Certain courses in the College are offered with special grading arrangements. An asterisk is available to denote the option to take up to two semesters to complete a modular course. If a student completes the course by the end of the first term, the grade is recorded as usual. If the course is not completed, the asterisk makes clear the option of continuing on the student's record, and the course is again recorded and the grade noted on the second term report.

The letter "R" is available for courses which are designed to be two-semester or year-long courses. The R is recorded at the end of the first term; the grade recorded at the end of the second term describes the level of performance in the course throughout the year.

Academic Standing

Students will be considered in good standing for the term if they successfully complete at least twelve hours by the end of the term and receive no more than one D and no grade of F or U. If their records fall below this level or if they fail to make satisfactory overall progress in grades, or in hours (whether due to failures or incompletes), or in the requirements of the College or the major, they may at any time be warned, placed on "final warning," suspended for a specific period of time (e.g., at least one year), or not allowed to register again in the College. A general guideline is that the student should be progressing toward the completion of degree requirements with at least 100 hours at a grade of C (not C-) or better.

Students will not be allowed to register for the first term of their junior year unless they have acceptance into a major program of a department.

All requirements for the degree must be completed by the degree date. There will be no changes in the record after graduation except to correct clerical or administrative errors. Grades, including incompletes, will remain unchanged.

Dean's List

The requirements for the Dean's List are determined by the Dean and may vary from term to term. The specific criteria for a given term, together with the list of students who have met those criteria, will be posted on the bulletin board opposite 142 Goldwin Smith Hall as soon as this information is available. In general, the requirement is a 3.5 grade point average in a program of at least fifteen credit hours taken for letter grades (with a correspondingly higher average required if only twelve, thirteen, or fourteen hours are taken for letter grades) and the completion of all work by the end of the semester.

Bachelor of Arts with Distinction

The degree of Bachelor of Arts with distinction in all subjects will be conferred upon those students who, in addition to having completed the requirements for the degree of Bachelor of Arts, (1) have completed at least sixty credit hours while registered in regular session in the College of Arts and Sciences; (2) have received the grade of B- or better in at least three-fourths of the total number of hours taken while registered in this College; (3) have received the grade of A- or better in at least one-half of the total number of hours taken while registered in this College; (4) have received a grade below C- in no more than one course; (5) have received no failing grade; (6) have maintained good standing in each of their last four terms; (7) have no incompletes remaining on their record.

Bachelor of Arts with Honors

The degree of Bachelor of Arts with honors will be

conferred upon those students who, in addition to having completed the requirements for the degree of Bachelor of Arts, have satisfactorily completed the honors program in their major subject and have been recommended for the degree by the department representing their major subject or by the Independent Major Board.

Honors programs are designed to free exceptionally promising students for a substantial portion of time from the ordinary requirements of academic courses in order that they may be able to broaden and deepen their understanding of the field of their special interest, to explore branches of their subject not represented in the regular curriculum, and to gain experience in original investigation. A candidate for the degree of Bachelor of Arts with honors is usually required to pass a comprehensive examination in his or her major subject or to submit a thesis or some other satisfactory evidence of capacity for independent work. The student may receive the degree with honors at one of three levels: *cum laude*, *magna cum laude*, or *summa cum laude*. When performance does not justify a degree with honors, the student may receive course credit toward the degree of Bachelor of Arts.

A student who, after admission to honors, is found to be unsuited to the work, will revert to candidacy for the regular Bachelor of Arts degree.

Special Arrangements

Advanced Placement

Freshmen may receive advanced placement credit toward the degree or placement into sophomore-level courses or both, if they have done college-level work in high school or have studied college material in some other way. All advanced placement and credit is recommended by the individual academic departments. With a few exceptions the awarding of credit is not conditional upon further study of that subject at Cornell.

Although advanced placement credit may sometimes be used to satisfy distribution or major requirements, the College does not recommend using such credit to reduce the normal schedule, but rather recommends using it as an opportunity to take more advanced work or a broader program. Students who wish to use advanced placement credit to reduce the number of terms in residence at Cornell are referred to the section on Acceleration p. 22 in this *Announcement*.

Freshmen who have completed college courses for which they wish to receive credit toward the Cornell degree should send transcripts and course descriptions to the Advising Center, 137 Goldwin Smith Hall, the summer before matriculation. The award of credit and/or placement for such courses is, like all ad-

vanced placement and credit, determined by the appropriate departments.

Freshmen who have done college-level work in high school and wish to receive advanced placement credit and/or advanced placement can provide evidence of their achievement by: (1) asking the College Entrance Examination Board (CEEB) to send Advanced Placement (AP) or College Level Examination Program (CLEP) examination scores to the Academic Advising Center, 137 Goldwin Smith Hall, or (2) arranging to take departmental advanced placement examinations when they arrive on campus. Advanced placement can then be announced by the time of registration so that new students can choose their courses accordingly.

The departments which award advanced placement and/or credit on the basis of AP, CLEP, or departmental examinations are shown below.

Biological Sciences

If students earn a score of 5 on the College Board Advanced Placement Examination in biology, they will receive eight credits and be permitted exemption from all introductory biology courses, including Biological Sciences 107. If they complete Biological Sciences 107, they will receive an additional four credits. If they score 4, they may take Biological Sciences 107 and, upon successful completion of this course, will receive seven credits. They will not be given credit or standing for a score of 4 only, and may not enroll in Biological Sciences 107 unless they have a score of 4 or 5.

No matter what their scores, students need not accept advanced standing. They may take whatever introductory biological sciences course seems appropriate to their interests, but will forfeit advanced credits.

If students feel prepared, they may arrange to take the departmentally administered examination by requesting permission in advance from the Introductory Biology Office, 310 Roberts Hall (256-2031). This examination is given only once during Orientation Week. Credit for work completed at other colleges before admission to Cornell will be decided on an individual basis. If students have transcripts from other colleges, they should have them sent to the Advising Center, 137 Goldwin Smith Hall.

Advanced placement with a score of 4 plus Biological Sciences 107, or advanced placement with a score of 5 fulfills the biological sciences distribution requirement.

Chemistry

The Department of Chemistry offers two sequences that satisfy prerequisites for further work in the Department—a seven-hour sequence which includes qualitative analysis (Chemistry 207-208), and a nine-hour sequence which includes both qualitative and quantitative analysis (Chemistry 215-216). The college-level chemistry course offered by some second-

ary schools corresponds roughly to Chemistry 207-208. CBA (Chemical Bond Approach) and CHEMS (Chem Study) are not considered sufficient preparation for advanced placement.

A freshman may qualify for advanced placement and seven hours of advanced placement credit for Chemistry 207-208 with a score of 5 on the Advanced Placement Examination in Chemistry, or by passing a special examination available from the Department of Chemistry. Before taking the special examination, a student must consult with Professor F. R. Scholer. A score of 4 or 3 on the Advanced Placement Examination earns three hours of advanced placement credit for Chemistry 207 and placement in Chemistry 208. However, students receiving advanced placement credit for Chemistry 207 who are interested in chemistry or a related science major should consider taking Chemistry 215-216 and should consult with Professor J. R. Wiesenfeld, Department of Chemistry.

Economics

The Department of Economics will grant six hours of advanced placement credit to students who score 600 or higher on the CLEP examination in introductory economics before entering Cornell. Such students will be admitted to courses for which Economics 101-102 is a prerequisite. CLEP scores should be submitted to the Academic Advising Center, 137 Goldwin Smith Hall.

English

For exceptionally well-qualified freshmen, the Department of English will recommend three or six hours of advanced placement credit, and freshmen for whom such credit has been recommended will also be eligible to enroll in certain intermediate courses in English and American literature. The Department's decision to recommend advanced placement credit will be based on performance on the CEEB English Composition or Literature Achievement Test, and on the CEEB Advanced Placement Examination in English (if it has been taken). Secondary school grades, including grades in any advanced placement (or "honors" or "enriched") courses, will also be considered. The Department will not exclude from consideration for advanced placement credit the student who has not taken an advanced placement course or the CEEB Advanced Placement Examination in English, nor will it base a decision to recommend advanced placement credit on any one piece of evidence—such as a score on the Advanced Placement Examination—alone. The Department does not give placement examinations.

Advanced placement credit awarded in English may not be used to satisfy the Freshman Seminars requirement, or the humanities or expressive arts distribution requirements.

Freshmen who do not receive advanced placement credit, but whose test scores and secondary school records in English are impressive, will be informed of permission to enroll in certain intermediate courses

in English and American literature during their first term at Cornell.

History of Art

College Board Advanced Placement Examination papers must be reviewed by the Department in order to receive credit. Students who receive a grade of 4 or 5 may receive a maximum of three hours of credit and be eligible to register for 300-level courses in the history of art. Questions concerning advanced placement may be referred in person or in writing to Mrs. Carol O'Brien, Administrative Aide, 35 Goldwin Smith Hall.

Languages

Classical Languages. Placement in Latin courses other than beginning Latin is normally determined by an examination administered by the Department of Classics during Orientation Week.

Tentative placement only may be made on the basis of College Board Achievement Test scores and/or previous training: two years of high school Latin for Latin 108; three or four years of high school Latin for 207, 208, or 215. Tentative placement in a 300-level Latin course is permitted to those entering freshmen who have passed the College Board Advanced Placement Examination in Latin with a score of 4 or better; such freshmen may also, at the Department's discretion, be required to take the Department's own examination during Orientation Week. If permitted to register in a 300-level course, the student will be given eight hours of advanced placement credit, and will be considered to have satisfied the language requirement of the College.

For advanced placement in Greek students should consult the chairman of the Department of Classics.

Modern Foreign Languages. If students attain a score of 700 or above on the CEEB examination, they are eligible to take the Advanced Standing Examination administered by the Department of Modern Languages and Linguistics. They will be placed in the appropriate language course on the basis of their performance in this examination; advanced standing credit (see below) may also be awarded on this basis. Native speakers of languages other than English may gain six hours of credit upon examination by the appropriate professor if they can demonstrate proficiency in reading and writing the language of their birth.

If students have two or more years of high school credit for language study and wish to continue study in that language, they must present a CEEB score. They will choose which course to take on the basis of the information given in the Placement Guidelines, a document which is sent to all incoming students and is posted at testing and advising centers. The Placement Guidelines match CEEB reading scores with courses at various levels. Placement in language courses for which no CEEB test exists is done in consultation with the appropriate professors in the Department of Modern Languages and Linguistics. If

students have had a year of formal study or substantial informal study since they last took the CEEB test, they are permitted to take it again (e.g., in August). CEEB tests are administered by the University Guidance and Testing Center at Cornell before registration in August and in December, January, and May.

Advanced standing credit, which may be used towards satisfaction of the language requirement (see p. 14) is granted as follows:

1. For high school work, credit is granted only for the equivalent of 200-level courses (three to eight hours). Credit in this case is awarded according to performance in the CEEB Advanced Placement Examination (a score of 4 or 5 on the language examination equals three hours of credit), Cornell's Advanced Standing Examination, or special examination. A recommendation for credit is forwarded by the appropriate faculty member to the Dean's Office.
2. Credit for language work at college level (including summer study and study abroad) is granted as follows:
 - a. For formal work at an accredited college, credit is considered by the Dean's Office upon submission of a transcript.
 - b. For summer study or study abroad at any time, the student must petition for transfer of credit in the usual way (i.e., with the permission and recommendation of the appropriate professor).

Semitic Languages. For advanced placement and credit in Semitic languages, students should consult with the Semitics Department, 166 Rockefeller Hall. Advanced placement and credit are determined as follows:

Hebrew: Students may be admitted to the first term of Intermediate Hebrew (Semitics 200) by departmental examination. To be admitted to the second term (Semitics 201), students should achieve scores of 500 on the CEEB examination. If they receive scores of 650 or above on the CEEB examination, they may be admitted to Advanced Hebrew (Semitics 300) and will receive five hours of credit. If students show evidence of knowledge beyond Semitics 300 they will receive eight hours of credit in Hebrew.

Arabic: Placement and credit are determined by departmental examination.

Literatures

French Literature. Advanced placement and advanced credit in French literature are granted by the Department of Romance Studies and may be given to a student who has achieved a score of 4 or 5 on the College Board Advanced Placement Examination in French literature. Credit will be granted only to those students who enroll in a French literature course at Cornell (normally French 201) and only to those whose achievement in that course confirms the Advanced Placement Examination result. A student may then receive credit for that course as well as retroactive credit of three hours for work done in an advanced placement course in high school. Normally not more than a total of six hours credit will be given

for French language and literature combined. Those seeking advanced placement in French literature should consult Professor J. Béreaud.

German Literature. College Board Advanced Placement Examinations are reviewed by the Department. A student who scores well may receive advanced placement and credit at the discretion of the Department. If students believe that their experience or scores merit advanced placement and/or credit, they should see a member of the Department of German Literature, 172 Goldwin Smith Hall.

Hispanic Literature. Advanced placement and advanced credit in Hispanic literature are granted by the Department of Romance Studies and may be given to a student who has achieved a score of 4 or 5 on the College Board Advanced Placement Examination in Spanish literature. Credit will be granted only to those students who enroll in a Spanish literature course at Cornell and only to those whose achievement in that course confirms the Advanced Placement Examination result. A student may then receive credit for that course as well as retroactive credit of three hours for work done in an Advanced Placement course in high school. Normally not more than a total of six hours credit will be given for Spanish language and literature combined. Those seeking advanced placement in Hispanic literature should consult Professor U. DeWinter.

Mathematics

The Cornell calculus sequences discussed below are described under "Basic Sequences" in the Mathematics section of this *Announcement*.

The regular freshman calculus courses at Cornell do not differ substantially from calculus courses given in many high schools, and it is best to avoid repeating material that has already been covered at an appropriate level. Secondary school students who have had the equivalent of at least one semester of analytic geometry and calculus should, if possible, take one of the CEEB's two Advanced Placement Examinations (either the AB or BC examination) during their senior year. Students taking these examinations will automatically be offered advanced placement as detailed below.

The placement examination in mathematics offered at Cornell just before the beginning of classes in the fall should be taken if the student has (1) had at least a semester of calculus but did not take a CEEB examination; (2) received a 2 on the BC examination or a 3 on the AB, and wishes to enter the upper sequence; or (3) believes that the placement assigned on the strength of the CEEB examination is not high enough in the student's case. Students are strongly urged to take the placement test even if they feel that their grasp of the material is uncertain. Grades on placement examinations do not become part of the student's record. The Cornell examination is given only at the beginning of the year.

A student entering the upper sequence who has a firm grounding in the first semester of calculus but

cannot omit the second may, with the consent of the Department, take 122 and 221 simultaneously in the first semester. Thus, if 222 is taken in the second semester, the student may complete the sophomore course by the end of the first year.

Students with a grade of 4 or 5 on the BC examination will receive six hours of advanced placement credit and will be placed in the appropriate third-semester course (293, 221, or 214-215-216-218) though students entering 293 may have to make up some material on partial differentiation. Students with a 3 on the BC examination, or a 4 or 5 on the AB, will receive three hours of advanced placement credit and will be placed in the appropriate second-semester course (192, 122, or 112). Students with a 2 on the BC exam, or a 3 on the AB, will receive three hours of advanced placement credit and will be placed in 192 or 112. Advanced placement credit will be awarded appropriately. A grade of 3 or higher on the BC exam satisfies the distribution requirement in mathematics.

Music

To apply for advanced placement in music students should consult the chairman of the department as early as possible, preferably concurrently with their application for admission. Arrangements will then be made for a comprehensive examination in theory, administered by the Department of Music. Depending upon the results of this examination, musical ability, and background in music, the student may receive some advanced placement credit in music theory.

Physics

Students may receive advanced placement and credit either by superior achievement in the CEEB Advanced Placement Examination (either the physics B or C examination) or in a departmental examination. The Advanced Placement Examinations are reviewed individually by the Department. The following recommendations for credit and placement are possible.

C examination: four hours credit for Physics 112 with a score of 4 or 5 on the physics C examination (mechanics) or with a score of 3 on the physics C examination (mechanics) and a high score on the mathematics AB or BC examination. Eight hours credit for Physics 112 and 213 with a score of 5 on the physics C examination (electricity and magnetism) and a score of 4 or 5 on the mathematics BC examination is possible through an interview with the physics advanced placement representative, Professor R. M. Cotts, 522 Clark Hall.

B examination: eight hours credit for Physics 101-102 with a score of 4 or 5; four hours credit for Physics 101 with a score of 3; four hours credit for Physics 112 with a score of 4 or 5 on the physics B examination and a score of 4 or 5 on mathematics AB or BC examination.

Advanced placement into a next-in-sequence course depends upon meeting appropriate mathematics prerequisites. It is not necessary to continue the study

of physics in order to qualify for advanced placement credit. In rare circumstances a student who is not recommended for credit may take the next-in-sequence course if permission is obtained from the instructor in that course.

For permission to take the departmental examination, students should consult with Professor H. F. Newhall, 101 Clark Hall.

General information and advice concerning advanced placement in physics may be obtained from Professor R. M. Cotts, 522 Clark Hall.

Psychology

If the student has scored well on the CLEP psychology test before entering Cornell, he or she may receive advanced placement credit in psychology. If further courses in psychology are desired the student may consult with an adviser or a faculty member in the Department. CLEP scores should be sent to the Academic Advising Center, 137 Goldwin Smith Hall.

Advanced credit based on the CLEP test may not be used to satisfy the distribution requirement. Credit toward the requirements of a major in psychology will depend upon the recommendation of the student's major adviser.

Sociology

The Department of Sociology will recommend advanced placement and three hours of credit for students who receive the equivalent of a B on the CLEP sociology examination before they enter Cornell and whose essay questions are considered acceptable by the Department. Students receiving advanced placement will be considered to have completed Sociology 101, to have finished one-half of the distribution requirement in sociology, and to be qualified for placement into advanced courses for which Sociology 101 is a prerequisite. CLEP scores should be sent to the Academic Advising Center, 137 Goldwin Smith Hall.

Acceleration

Most students spend eight terms in residence in the College before graduating, but under special circumstances the Bachelor of Arts degree may be awarded at the end of six or seven terms—for example, if students have so much advanced placement credit that they enter Cornell with the equivalent of a term's or year's study, and are sufficiently well prepared to take advanced courses while still an underclassman. If these students wish to consider the possibility of graduating in fewer than eight terms (whether they have advanced placement credits or not), they should inquire at the Academic Advising Center, 137 Goldwin Smith Hall, early in their freshman year. The Center will aid students in working out a coherent plan that makes good educational sense. This planning should be done early in a student's academic career so that the program assures four terms of genuinely upperclass work. Once the program is decided upon, the student should request an Acceleration



tion Petition. Ideally, an acceleration plan should be submitted about the time the student is seeking admission to the major.

If after reaching upperclass status the student finds that acceleration is feasible, he or she may still petition to graduate early, with the support of the adviser and the chairman of the student's major department. In rare cases, a plan will be approved during the term before the proposed graduation date. In these cases the deadline for submitting the plan will be the last day for adding and dropping courses without fee.

Requests for acceleration will be reviewed by a College committee, which will decide whether the student's plan meets the spirit of the degree as well as all the requirements. Some of the things they will look for are competence in a discipline, the meeting of all requirements, sufficient upperclass work (the general rule of thumb is fifty Arts College credit hours in courses numbered 300 or higher), at least one hundred hours of grades of "C" or better, and ninety hours of work in regular session in this College (sixty for transfers).

If students are granted the privilege of accelerating, and then change their minds, they should inform the Dean's Office, 142 Goldwin Smith Hall, in writing, by the last day of the examination period before their accelerated graduation date.

If a student's acceleration plan is approved but the student fails to fulfill it, he or she will be required to register for a full seventh or eighth term, unless the failure is due to reasons beyond the student's control (e.g., illness).

Double Registration

With Law: If students are able to graduate in seven terms (i.e., in January of the fourth year) rather than in eight (see Acceleration above), it is possible to register simultaneously in the College of Arts and Sciences and the Law School during the seventh and eighth terms, and to receive the Cornell A.B. degree at the end of the eighth term, and the Cornell J.D. degree after only two additional years of study.

With Medicine: A similar program is available with the Cornell Medical College, leading to an A.B. and an M.D. in seven years. Plans are underway to establish a similar program with the State University of New York Upstate Medical Center in Syracuse.

With Business and Public Administration: A similar program is available with the Cornell Graduate School of Business and Public Administration. The A.B. and the M.B.A. or the M.P.A. can be completed in five years.

Acceptance to the other Cornell college or school and consent of the College of Arts and Sciences are necessary in all the above cases. Interested students

should consult a member of the Academic Advising Center, 137 Goldwin Smith Hall.

Dual Degree Programs with Other Undergraduate Colleges at Cornell

Upon petition it is possible to earn degrees in engineering or fine arts and a Bachelor of Arts in five years, provided plans for the joint program are begun by the end of the freshman year at Cornell. It is unlikely that transfers to Cornell will be able to qualify for the dual degree program. Students who are interested should inquire at the Academic Advising Center, 137 Goldwin Smith Hall, and at the Department of Art, 100 Franklin Hall, or in the office of the Division of Engineering Basic Studies, 170 Olin Hall.

Early Concentration Programs

The German and Russian Literature Departments have instituted early concentration programs, under which students with a particular interest may, during their freshman or sophomore years, work intensively in these areas by taking a concentration of courses especially designed for this purpose. See the entries under German 211 on p. 137 and Russian 107 on p. 146.

Independent Study and Fieldwork

Students may, in the course of their studies, discover subjects to which they wish to give more time, but which are not available in scheduled courses. Upperclassmen especially are encouraged to pursue such topics through independent study and research or through fieldwork.

Students who wish to study such topics through reading or laboratory work are invited to come to the Office of Special Programs, 159 Goldwin Smith Hall, for help in making arrangements for independent study.

A student registers for an independent study course by submitting an independent study statement to 134 Goldwin Smith Hall. Up to six hours credit may be earned in one semester through such study with one instructor; up to eight hours credit may be earned during one semester for independent study projects with more than one professor.

Fieldwork is a way that upperclassmen may receive credit for work experiences which are related to their areas of study. Each fieldwork project must be supported by three faculty members who agree to serve as the Fieldwork Committee. The Committee's responsibilities include examining preparation for the project, supervising activities, and evaluating achievement. The Committee on Academic Records must approve fieldwork proposals in advance. The maximum amount of credit for fieldwork that a student may receive toward the degree is fifteen hours. For help in setting up fieldwork projects, students

should consult with Mrs. Unsworth, 137 Goldwin Smith Hall.

In Absentia Study

After a year or more at Cornell, a student may wish to earn credit toward a degree through study for a term or a year at another university. Such a plan must be supported by the adviser and by the chairman of the department in which the student majors. Prior approval of all courses must be obtained from the appropriate department chairmen at Cornell. The Committee on Academic Records must be satisfied that the student is qualified for such study and that the *in absentia* program will provide a valuable addition to the student's undergraduate education.

In absentia study is usually thought of as study abroad, though students may choose to study at an American university which has academic programs not available at Cornell. Advisers and the Career, Summer Plans, and Placement Center are good sources of information about study abroad.

Plans to study *in absentia* should be discussed with the student's adviser and with a member of the Academic Advising Center. Requests for permission to study *in absentia* must be submitted to the Dean's Office, 142 Goldwin Smith Hall, by November 1, 1974 for spring term *in absentia* study, and by April 1, 1975, for fall term *in absentia* study. Petitions should be submitted by these deadlines even if the student has not yet been accepted by the program or school to which he or she has applied.

Leaves of Absence and Withdrawals

A leave of absence implies the student's right to re-register in the College, although that right may be conditional. All leaves of absence are for an unspecified but limited time; five years is the maximum length of time the student may leave a degree in abeyance.

Please note: A leave of absence is not the same as permission for *in absentia* study, and credit will by no means be automatically granted for study completed while the student is on leave. Limited amounts of credit may be earned, however, if the student is (a) a member of the armed services, (b) studying subjects not offered at Cornell, or (c) earning credits to submit as evidence for readmission from a conditional leave. In these cases, the appropriate Cornell department chairman must approve the credit. The Committee on Academic Records will then review the request for credit upon readmission to the College.

Leaves of absence are of three types:

1. A leave of absence for *personal* reasons has no modifying conditions concerning the student's right to re-enter the College (except the five-year limit on leaving a degree in abeyance). Readmission is automatic if a request is made six weeks prior to the beginning of the term in which the student wishes to return. Such leaves are granted to students in good standing who request a leave before the eighth week

of the semester.

2. *Medical* leaves of absence are granted by the College only upon the recommendation of Gannett Clinic. Such leaves are granted for an unspecified length of time (up to five years) with the understanding that students may return at the beginning of any term after satisfying the Clinic that the medical condition in question has been corrected.

3. A *conditional* leave of absence may be granted if the student is not in good standing or, in unusual circumstances, after the seventh week of the term. Normally students may not return from a conditional leave for at least one year. They must also meet the stated conditions (determined at the time of request for leave), and submit letters of support establishing readiness to return and continue their education.

Students wishing to take a leave of absence for any reason should contact a member of the Academic Advising Center, 137 Goldwin Smith Hall.

All courses for the partial term will be expunged from the student's records if a leave is granted. Upon readmission, the student's graduation date will be determined according to the length of the leave, the number of acceptable credits earned toward the degree, and College policies.

Two consecutive leaves will not be granted; students should therefore be certain they are ready to return and able to undertake a full program when they ask for readmission.

A withdrawal is considered a voluntary severance of connections with the University. If the student wishes to withdraw during a term in which he or she is already registered, the withdrawal must be requested before the eighth week of classes. Upon withdrawal it is assumed that the student will not wish to re-register in the College.

Students who fail to register for a term and who have not requested a leave will be withdrawn from the College for failure to register.

When students take leaves of absence, or withdraw, parents are notified that such an action has been approved by the College. In unusual circumstances, the student may request that such notice to parents be withheld.

If a leave of absence or withdrawal is taken during a term for which the student is already registered, he will be charged tuition as follows:

Period of time following University registration	Percentage of semester total
First six days 8/30-9/4; 1/24-1/29	no charge
Seventh day 9/5; 1/30	10%
Second week 9/6-9/12; 1/31-2/6	20%
Third week 9/13-19; 2/7-2/13	30%
Fourth week 9/20-9/26; 2/14-2/20	40%
Fifth week 9/27-10/3; 2/21-2/27	60%
Sixth week 10/4-10/10; 2/28-3/6	80%
Seventh week 10/11; 3/7	100%

Students who take a leave of absence or withdraw after two years of study should ask at the Academic

Advising Center for information about the New York State Regents External Associate in Arts degree.

Premedical Studies

Students who intend to prepare for the study of medicine or dentistry are urged to report to the office of the Premedical Advisory Committee, G14 Stimson Hall. This Committee has established standard procedures to facilitate the eventual preparation of letters of evaluation for applicants to medical and dental schools. Advisers are available to provide counseling on academic and curricular problems related to premedical and predoctoral studies. The Committee also maintains a library of medical school catalogs and other publications which may be consulted at its office.

Medical educators generally agree that in planning college courses, a premedical student should not allow an interest in science to exclude studies in the humanities. They also agree that it would be unfortunate for the future of medicine if all premedical students followed the same course of studies or majored in the same subject. For these and other reasons there is no fixed premedical curriculum at Cornell; there is no "premedical major," and no single major program is viewed as more desirable than any other in preparation for the study of medicine. Certain minimum requirements for admission are, however, prescribed by all medical schools. The most substantial of these requirements is in chemistry, and it is therefore recommended that the premedical student include chemistry in his or her freshman course of study. Some premedical students choose to take two sciences in the freshman year, either chemistry and physics or chemistry and biology. Students who plan to pursue major studies in biological sciences will find it advantageous, though not absolutely necessary, to include biology in their freshman programs.

The Premedical Advisory Committee suggests that since almost all medical schools require English composition for admission, prospective medical school applicants should elect to satisfy the Freshman Seminars requirement with six hours of English, or plan subsequent course work in this subject.

Student-Initiated Courses

Students' academic experiences at Cornell are not confined to the classroom, or to what they will learn in the formally organized and conducted courses they take for credit. Students are encouraged, individually and in groups, to plan and to organize independent courses of study, of varying degrees of formality, with and without the advice or guidance of faculty members, on a noncredit basis. One purpose of a formal four-course load (in junior and senior years) is to give students greater freedom to pursue their own intellectual inclinations.

Sometimes the proposed, student-initiated course of study may be so ambitious that it is unfeasible unless

it can be taken for credit. Many departments already list courses designated as "independent study," "supervised reading," or "independent research," which may serve this purpose. In addition, the College encourages students to initiate proposals for new courses or modes of instruction which are not currently offered in the College, or elsewhere in the University. If such a proposed course falls within the jurisdiction of a particular department, the student should seek the advice of a faculty member in the department or of the chairman. If an interdisciplinary course is being considered, the student may seek the assistance of the Agency for Educational Innovation established by the University Senate. The Agency is prepared to help students plan and organize innovative projects of all kinds. The Educational Policy Committee of the College must approve any course which is to count for academic credit.

For further information, students should consult a member of the Office of Special Programs, 159 Goldwin Smith Hall.

Special Programs

The College offers a considerable number and wide range of special programs. Most of them are briefly described here. Course descriptions (or cross listings) begin on p. 187. More detailed information is available at the appropriate program or department office, or at the Office of Special Programs, 159 Goldwin Smith Hall.

Africana Studies and Research Center

The Africana Studies and Research Center has a unique and specialized program of study that offers an undergraduate degree through the College of Arts and Sciences and a graduate degree (Master of African and African-American Studies) through the University's Graduate School. The purpose of the program is to prepare students for professional careers relevant to the learning and leadership needs of the African-American community. It envisions that the knowledge and methodology of various fields and disciplines will be brought to bear upon the history, present state, and dynamics of the black people and cultures in the Americas, Africa, and the Caribbean. The curriculum is designed to reflect a multidisciplinary approach to the experience of African peoples throughout the world. The Africana Center's courses are open to both majors and nonmajors. More information, including course offerings, can be found on p. 187.

American Studies

R. Elias, M. B. Norton, R. Polenberg, B. C. Rosen, S. C. Strout, Jr.

The American Studies Committee seeks to encourage interdisciplinary work in the history and culture of the United States. At present it offers the choice of a major subject (rather than a degree) in American studies only to graduate students who seek a degree in English and history. Specific programs are arranged individually with the student's special committee. Undergraduates who wish to concentrate in American studies may apply to the Independent Major Program. Students should also speak to a member of the Committee, and should consult course listings in relevant areas (e.g., history, English, history of art, etc.).

College Scholar Program

The College Scholar Program exists because we are convinced that some students do not need the usual rules and regulations—that they will feel better about their education, and do a better job of finding their way through Cornell, if they know that getting the most out of four years here is up to them. Obviously, the program is meant for able, mature students. It is not necessarily for those who know, or think they know, exactly what courses they will take while they are here. It can be a way of exploring with a little more freedom than other students enjoy.

Forty students from each class are selected as College Scholars and are allowed to design, in consultation with their advisers, their own degree programs. They may become departmental majors or independent majors, but need not do so. They need to design a program that involves them in 120 credits, four terms of physical education, and, unless they receive permission to accelerate, eight terms at Cornell. They may not register for underhours without permission from the Committee of Deans, but they may take up to twenty-one hours without petitioning. In order to accelerate, College Scholars must meet the guidelines established by the Committee on Academic Records or petition for a waiver. They may, like other students, receive permission to study *in absentia*. College Scholars do not need to meet the letter of the College's distribution requirements, but there is a strong feeling among the members of the College Scholar Advisory Board that the spirit of those requirements is a good one, and, as it happens, in the past almost all College Scholars have technically met the requirements. The forty students are chosen in the spring term of their freshman year. The deadline for application is February 28. Further information is available in the Office of Special Programs, 159 Goldwin Smith Hall.

The Frederick George Marcham Scholar Program

The Frederick George Marcham Scholar Program is supporting in 1974-75 a special seminar program, Law and Social Science (Government 324-325, see p. 104). Students who are interested in the program should see D. J. Danelski, 100 McGraw Hall.

Program in Greek Civilization

This is a program of studies in Greek civilization for a select group of freshmen and sophomores, whether they plan to concentrate in the sciences or in the humanities. Its purpose is to give unity to students' introduction to the liberal arts as they gain some understanding of philosophy, history, government, science, literature, and art. A considerable amount of knowledge is unified by its common origin in Hellenic culture, and students will be introduced to this world which forms the foundations of Western civilization. This integrated approach to a single culture offers at once specific knowledge and broad horizons. At the same time Ancient Greece affords, in manageable quantity, works of the highest quality in poetry, art, philosophy, and other fields; and its remoteness in time is usually an advantage for gaining perspective on our own society.

The Program is also an alternative to a professionalism which leaves students no occasion to raise some of the great questions of life in a systematic or scholarly way, a purpose for which many students come to college in the first place. Because the combination of familiar and foreign elements in Greek thought is complicated, much of the teaching and learning will be through discussion. For that reason the Program is limited to about ten students each year. Regular course meetings will be supplemented by occasional colloquia involving faculty and students. Participation in the Program leaves the student free to take at least two other courses each semester and so to prepare for his or her major and satisfy any requirement not included in the Program.

Human Affairs Program

D. Leahy, director; V. Dowd, assistant director; T. Haight

The Human Affairs Program is an attempt to integrate theory and practice by providing all students with an intensive fieldwork experience linked to some form of seminar or classroom study at the University. While the different sections deal with a wide variety of social problems, they all have the following inter-related purposes: (a) to enrich Cornell education, especially at the undergraduate level, by providing students, staff, and faculty with opportunities to work on practical human problems in the surrounding region; ((b) to link the human resources of the University with the concerns of community groups and organizations, as they seek to solve their problems and improve the conditions of their lives; (c) to develop organizational relationships whereby students, professors, and extension specialists can work together in building innovative approaches to education. See p. 192 for a listing of the courses offered by the Human Affairs Program in 1973-74.

Independent Major Program

Students in the College are required to complete a course of study in a major field, usually within a de-

partment. However, the departmental structure of the College does not exhaustively define legitimate areas of study. Some students may best be served by an independent major. Through the Independent Major Program, they may design their own major, with the close guidance of appropriate members of the College faculty. The independent major may only be used in cases where a departmental major clearly will not serve the purpose; it is not a vehicle for altering a departmental major or avoiding particular requirements.

Students in the Independent Major Program are eligible for honors work. Honors projects will be supervised by the adviser and other appropriate members of the faculty. Application for honors work must be made through the program office at 159 Goldwin Smith Hall, usually sometime before preregistration for the first semester of the senior year.

Admission to the Program will be based on the quality of the proposed major and the student's ability to carry out his or her plans. Each application will be referred to a board of three teachers from each of the appropriate divisions of the College. They will evaluate the major for coherence, breadth, and depth, and will look at the student's record to judge his or her preparation for the proposed course of study. Majors will be approved only if they are as ample and rigorous as a department major; random selection of courses will be rejected. The board may also specify changes which will be required or recommended before a major is approved; in any case, they will try to give the reasons for their decision.

Once a major is approved, it is the responsibility of the student and adviser to carry out the program as planned. Minor changes, because courses become unavailable or new courses are offered or for other routine reasons, will be arranged between the student and adviser. The student and adviser will be responsible for any special arrangements which need to be made regarding course prerequisites or other departmental regulations. The adviser will certify, prior to graduation, completion of the course of study as planned, just as a major department would ordinarily certify completion of the major. Serious changes in the program, including acceleration, or substantial alteration of the content of the major, must return to the board for approval.

Application forms and general information are available from the Office of Special Programs, 159 Goldwin Smith Hall.

International Studies

Cornell's approach to international studies is distinctive. There is no separate school or department of international studies; rather a student can draw upon the broad range of course offerings in the colleges and schools at Cornell. In the College of Arts and Sciences there are extensive opportunities through the various departments for course work on international or comparative subjects and modern foreign languages. Students in the Arts College interested in

an interdisciplinary major in international studies may be able to shape one through the College's Independent Major Program.

A student enrolled in the College of Arts and Sciences may benefit from the international offerings of other schools and colleges, including the numerous courses in the College of Agriculture and Life Sciences and the program in international and comparative labor relations of the School of Industrial and Labor Relations. In addition, there are more than twenty interdisciplinary programs in international studies, which bring together faculty members and students from various departments to study problems of common concern. The Center for International Studies plays an important part in developing and coordinating such activities. Further information about the activities of the Center and its constituent programs is found on p. 193.

Program of Jewish Studies

The Program of Jewish Studies is included in the framework of the Department of Semitic Languages and Literatures. The Program has grown out of the conviction that Judaic civilization, no less than Greek and Roman, merits comprehensive and thorough treatment. The other view that helped form the guidelines of the Program is that proper understanding of any literature is inconceivable without adequate knowledge of the history of the people that created it. Accordingly, the Department's offerings in the area of Hebrew language and literature have been considerably expanded and have branched out to include Jewish history:

Although further expansion of the Program is still called for to encompass the broad spectrum of disciplines in the field, the Program, as it is constituted at present, already enables students to obtain basic instruction and specialization in the fields of Hebrew and Aramaic languages, the Old Testament, the Apocryphal and Tannaitic literatures, medieval Jewish philosophy, medieval Hebrew literature, modern Jewish thought, modern Hebrew literature, and medieval and modern Jewish history. In all these fields students may take courses on a graduate and an undergraduate level.

Students may get more precise counsel from their advisers or from the department head. For details concerning the courses included in the Program, see p. 174.

Latin American Studies

The Latin American Studies Program encourages and coordinates faculty and student interests in Latin America. A variety of special lectures, films, and seminars supplements the regular course offerings.

Undergraduate students may arrange a Latin American concentration in conjunction with an independent major, and graduate students may pursue a minor in Latin American studies while majoring in the graduate field of their choice. The College of Arts

and Sciences offers Latin American studies courses in anthropology, economics, government, history, history of art, and sociology. In addition, there is a varied language, literature, and linguistics curriculum in Spanish, Portuguese, and Quechua. The student may also pursue Latin American studies in the College of Agriculture and Life Sciences; the College of Architecture, Art, and Planning; the College of Human Ecology; and the School of Industrial and Labor Relations. For a more detailed course listing, see p. 193 of this *Announcement*.

Concentration in Law and Society

The College of Arts and Sciences and other branches of the University already offer a sufficient number and variety of undergraduate courses about law and society to permit students who have a major in some existing discipline within the College to study law and society as a minor field. This concentration may interest not only those students who seek a fuller understanding of the roles of law in modern society for whatever social utility this understanding may have, but also those interested in law as a significant historical and cultural phenomenon. (It is not designed for prelaw students as such, though it may interest some prelaw students too.)

Students who wish to graduate with a concentration in law and society should first consult one of the law and society advisers listed below. Only the courses listed on p. 194 of this *Announcement* (or in any approved supplement) qualify for the concentration in law and society. To satisfy the requirements of this concentration, a student must complete no less than four such courses, to be selected in consultation with the student's law and society adviser.

The law and society advisers for the 1974-75 year are: D. J. Danelski (government), C. A. Holmes (history), D. B. Lyons (philosophy), M. B. Norton (history), D. T. Regan (psychology), D. Resnick (government), and C. A. Sheingold (sociology).

Medieval Studies

Students who plan to do graduate work in medieval studies at Cornell or elsewhere have an opportunity to take many relevant courses as undergraduates. Instruction is available in the following areas: medieval Hebrew, medieval Arabic, medieval Latin, Old English, Middle English, Old Provençal, medieval French, medieval Spanish, medieval Italian, Old Saxon, Old High German, Middle High German, Gothic, Old Norse (Old Icelandic), Old Russian, Old Bulgarian, Old Church Slavonic, medieval art and architecture, medieval history, Latin paleography, medieval philosophy, musicology, comparative Slavic linguistics, and comparative Romance linguistics.

Undergraduates who wish to do an independent major in medieval studies should consult the field representative for medieval studies, Professor A. B. Groos,

182 Goldwin Smith Hall. The staff of the graduate program will do its best to guide such students.

Military Science

As a land-grant institution chartered under the Morrill Act of 1862, Cornell has offered instruction in military science for more than one hundred years. Cornell provides this instruction through the Reserve Officers Training Corps programs of the three military departments: the Army, the Navy, and the Air Force.

The ROTC programs offer students the opportunity to earn a commission while completing their education. To obtain a commission in one of the armed services, students must complete a two-year, three-year or, four-year course of study in an ROTC program and must meet certain physical standards. Upon graduation students receive a commission and serve a tour of active military service. (Length of service varies with each service.)

Further information is provided in the *Announcement of Officer Education*, which may be obtained by writing to Cornell University Announcements, Edmund Ezra Day Hall, Ithaca, New York 14850. Interested individuals are also directed to the appropriate ROTC office in Barton Hall.

Religious Studies Concentration

The religious studies concentration is an interdisciplinary program established for the purpose of sponsoring the study of the religions of mankind at the undergraduate level. A variety of disciplines, departments, and academic perspectives are available to students interested in this area of study.

A student may fulfill the requirements for a religious studies concentration by completing for credit a minimum of four courses selected from one or more of the participating departments. The precise number and nature of these courses should be determined in consultation with an adviser in the area of the student's specialized interest. The choice of courses may be organized on a historical basis (i.e., the study of a single religious tradition) or on a comparative basis (i.e., the study of a problem or set of problems as reflected in two or more religious traditions). Courses in religious studies are offered in the following disciplines: anthropology, Asian studies, classics, history, history of art, medieval studies, philosophy, Semitic languages and literatures, and sociology. Students who are interested in taking a concentration in religious studies should consult J. B. Long, 158 Rockefeller Hall. He will direct you to the proper adviser.

Program in Roman Civilization

The educational goals and general form of the Program are similar to those of the Program in Greek Civilization (see p. 27). Roman civilization has its own distinctive appeal, with a rich and original literature, a profoundly important history, and a language

and traditions which were the primary vehicles of Western culture for fifteen hundred years. Roman notions of politics and humanism are the backbone of European and American political and educational thought. Roman literature is an indispensable key to subsequent Western prose and poetry. Classes with a strong emphasis on discussion offer the student ample opportunity for raising many issues fundamental to Western tradition.

Major in Russian and Soviet Studies

The College now offers a major in Russian and Soviet studies, the requirements for which are:

1. Qualification in Russian, as defined on p. 14.
2. At least one course relating to Russia, at the 200 level or above, in each of the following departments: Russian literature, government, economics, and history. (A course in another department may be substituted for one of the above with the consent of the major adviser.)
3. At least three additional courses, at the 300 level or above, in one of the following departments: Russian literature, government, economics, or history. These courses shall be selected in consultation with the student's adviser and shall be approved as appropriate for a major in Russian and Soviet studies.

Each student majoring in Russian and Soviet studies will be assigned a major adviser in the department of his or her special interest who is also a specialist on Russia. Interested students should contact W. M. Pintner, Department of History, or M. Rush, Department of Government.

Program on Science, Technology, and Society

R. Bowers, director; P. Bereano, executive secretary

Students and faculty from all parts of the University are welcome to participate in the interdisciplinary Program on Science, Technology, and Society. The purpose of the program is to stimulate and initiate teaching and research on the interaction of science and technology with contemporary society, and to provide coherence and support for current University activities in this area.

Topics of concern to the Program include: science, technology, and national defense; the humanities, science, and technology; technology assessment; legal and moral implications of modern biology and medicine; national policy for the development of science; the sociology of science; the ecological impact of developing technology; and science, technology, and law. Mechanisms for studying problems such as these include courses, graduate and faculty seminars, workshops, and individual research programs. The Program is also a member of the graduate minor field of public policy, offering a science policy "stream" within this minor field. The courses listed on p. 195 are cosponsored by the Program on Sci-

ence, Technology, and Society in collaboration with other units of the University.

Social Relations

The Social Relations Program is staffed by faculty in anthropology, psychology, and sociology and provides a major for students wishing to have a broad background in the study of human social behavior. The Program concentrates on the common interests and research methods of cultural anthropology, social psychology, and sociology. In a special seminar in the senior year, students are encouraged to integrate aspects of the theory and data of the three disciplines around their own individual interests and personal objectives.

More information on the Program is given in the Anthropology and Sociology sections of this *Announcement*. Students may also consult with the chairman of the Social Relations Committee, Robin M. Williams, Jr., Department of Sociology, Uris Hall.

Society for the Humanities

The Society awards annual fellowships for research in the humanities in three categories: senior fellowships, faculty fellowships, junior postdoctoral fellowships. The Fellows offer, in line with their research, informal seminars intended to be off the beaten track. Details about these seminars are circulated to interested departments.

Unlike other courses, the Society's seminars begin the second week of each semester. A student wishing to attend any of these seminars should telephone the secretary of the Society (256-4086) early in the first week of the term to arrange a short interview with the Fellow offering the course. Students wishing credit for the course must formally register for it in their own College.

Southeast Asia Studies

A candidate for the Bachelor of Arts or Bachelor of Science degree at Cornell may take a concentration in Southeast Asia studies by completing fifteen hours of course work, including a history course and three courses or seminars at the intermediate or advanced level, two of which may be Southeast Asian language courses.

Students taking a concentration in Southeast Asia studies are members of the Southeast Asia Program and are assigned an adviser from the Program faculty. Such students are encouraged to commence work on a Southeast Asian language and to take advantage of summer intensive language training.

Preparation for Teaching

Students can earn provisional certification to teach in secondary schools in New York State by completing one of the state-approved programs in the College.

Each of these programs includes the requirements for the bachelor's degree, professional courses in education or psychology, and a practice teaching experience in nearby schools. Because of changing certification procedures in New York State, it is not clear which of the existing programs will be available beyond 1976-1977.

The teacher preparation programs which will be offered in 1974-1975 will be in English, mathematics, modern languages, and social studies. To be eligible for one of these programs, interested students should register no later than the end of the sophomore year at the Academic Advising Center, 137 Goldwin Smith Hall, where additional information is available.

Women's Studies Program

The aim of the Women's Studies Program is to encourage the development of teaching and research about women. Each term, the Program offers courses (both independently and in cooperation with other departments) on diverse subjects such as the social psychology of women, women in literature, women in history, women in the work force, and others. Students wishing to develop a concentration in women's studies can augment courses in their major fields with courses offered by the Program. Before the beginning of each term, the Program publishes a list of courses in other departments and colleges

which have been designated by the professors who teach them as related to the study of women.

The Program also serves as a clearinghouse for information about women's organizations on campus. Students may find help in choosing careers at one of the preprofessional organizations for women in law, women in engineering, women in science, women in architecture, women in the social sciences, and others. Courses offered by the Women's Studies Program are open to all students in all colleges and schools at Cornell.

Further Information

Information on matters of general interest not contained in this *Announcement* such as details about health services and requirements; housing and dining services; tuition, fees, and living expenses; applications for financial aid; and motor vehicle regulations, may be found in the *Announcement of General Information*. The *Announcements* for all of the colleges and schools of Cornell University are listed at the back of this publication, and may be obtained by writing to the address given, or by inquiring at the administrative offices of the several schools and colleges.



Cornell University

Courses of Instruction

Anthropology

T. F. Lynch, chairman; R. Ascher, R. A. Borker, D. R. DeGlopper, V. R. Dyson-Hudson, D. J. Greenwood, T. A. Gregor, L. W. Hazlehurst, J. S. Henderson, C. F. Hockett, K. A. R. Kennedy, A. T. Kirsch, B. Lambert, M. E. Meeker, J. V. Murra, J. T. Siegel, R. J. Smith, R. B. Thomas

Two majors are offered by the Department: (1) a major in anthropology and (2) a major in social relations.

Major In Anthropology

To fulfill requirements for a major in anthropology a student must take two of the following: Anthropology 101, 102 or 103 and an additional thirty-two hours chosen from four- or five- credit-hour courses (300 level or above). Eight of these hours may be taken at a comparable level in related fields outside the Department with the approval of the adviser.

The student's developing interests may lead to a concentration in the humanistic, social, or natural science aspects of anthropology, which as a broad field includes the subdivisions of archaeology, social anthropology, linguistics, psychological anthropology, and physical anthropology. The specific program of courses in the major and related subjects is designed by the student in consultation with the major adviser.

Attention of students is directed to the course offerings in archaeology, biological sciences, and linguistics, where subjects closely related to anthropology are treated.

Major In Social Relations

The major in social relations is offered jointly by the Department of Anthropology and the Department of Sociology. The major provides the student with basic competence in cultural anthropology, social psychology, and sociology, while giving particular emphasis to the common methods of research in these disciplines. The student electing this major is expected to obtain a grasp of the common interests and evidence of these disciplines as well as knowledge of their unique insights in attempting to develop generalizations regarding man in society. The student's work is integrated in the senior year in the Social Relations Seminar in which the student is expected to interre-

late aspects of the theory and data of the three disciplines.

Prerequisites

The candidate must apply to the Committee on Admission to the Social Relations Major, offering the following: (a) either Anthropology 103 or Sociology 101, (b) either Psychology 101 or 102, or Human Development and Family Studies 115, or Sociology 280, and (c) Industrial and Labor Relations 210 or the equivalent.

Requirements

The social relations major calls for a minimum of thirty-six hours of course work as follows:

1. Three pairs or other combinations of related four- or five-hour courses (300 and 400 level), to be selected in consultation with the major adviser. These six courses must include two from each of the following disciplines: anthropology, social psychology, and sociology.
2. At least one course in methods, to be selected from the following: anthropological methods, techniques of experimentation (psychology), methods in sociology, advanced psychological statistics, the philosophy of science or of social science, advanced statistics (such as Industrial and Labor Relations 311).
3. At least one course in theory which is related to social relations.
4. The senior seminar in social relations (Sociology 497 or Anthropology 495).

A list of courses that may be used to satisfy the requirements for the major in social relations is available from any major adviser. Students seeking admission to the program in social relations should apply to the chairman of the Social Relations Committee, Robin M. Williams, Jr., Department of Sociology.

Human Biology Program

Human biology is a program of study offered by the Department of Anthropology. The purpose of the program is the training of students in a broad variety of subjects within the area of human biology. Such subjects include human evolution, ecology, genetics, behavior, anatomy, physiology, etc. The Program is offered as a concentration to undergraduate students.

Application

All inquiries and correspondence relating to the concentration in human biology are handled in the offices of the Department of Anthropology. The applicant will be assigned a biological anthropologist in the Department of Anthropology who will serve as temporary adviser. With this member of the faculty, the undergraduate can discuss whether to pursue a concentration in human biology which would lead to

the conferral of the Bachelor of Arts degree in anthropology.

Requirements

The requirements for the concentration in human biology are designed to ensure sufficient background in the physical sciences and mathematics to enable the student to pursue a wide range of interests in the area of modern biology. In the freshman year, two semesters of biology (Biological Sciences 101-103 and 102-104), two semesters of general chemistry (Chemistry 207-208), and two semesters of calculus (Mathematics 111-112, 111-122 or 107-108) will normally be completed. One lecture course in organic chemistry and one organic chemistry laboratory (Chemistry 253-251, or 357-358 and 301 or 251), a course in genetics (Biological Sciences 281), and a course in biochemistry (Biological Sciences 431 or 531-532) are requirements which can be completed by the middle of the sophomore year. Two semesters of physics (Physics 101-102 or 207-208) are required and should be completed early in the student's program.

The concentration in human biology requires a total of fourteen credit hours selected from the following: Anthropology 101, 102, 221, 304, 372, 373, 374, 375, 471, 472, and Biological Sciences 273, 361, and 476 (Section of Ecology, Evolution, and Systematics). Biological science courses included in the concentration requirement may not simultaneously be used to fulfill the breadth requirement.

Breadth requirements, designed to ensure that the student in human biology is familiar with areas of biology outside the concentration, specify that each student must pass a course in two of the following categories: (1) developmental biology (Biological Sciences 347); (2) ecology and evolution (Biological Sciences 361, 476); (3) geology (Geological Sciences 101); (4) microbiology (Microbiology 290A); (5) morphology (Biological Sciences 311, 313, 316, 345); (6) neurobiology and behavior (Biological Sciences 321, 421); (7) physical sciences and mathematics (Chemistry 287, 289, 300; Mathematics 213, 221; Statistics 510); (8) physiology (Biological Sciences 242 or 340, 410, 414); (9) taxonomy (Biological Sciences 273, 316, 344, 371; Entomology 212; Plant Pathology 309).

Facilities

Cornell has a modern physical anthropology laboratory with a collection of osteological and fossil cast materials. Facilities for serology, anthropometry, primate dissection, and work physiology studies are available. Calculators and a statistical and reference library are maintained in the laboratory as well as drafting and photographic equipment.

Special Programs

Specialized individual study programs are offered in Anthropology 497-498 (Topics in Anthropology), open to a limited number of juniors and seniors.

Consent of the instructor is required.

The Department of Anthropology holds colloquia throughout the academic year. Faculty from Cornell and other universities participate in discussion of current research and problems in anthropology; students are encouraged to attend.

The Honors Program

Students majoring in anthropology who seek admission to the Department's Honors Program should apply on a form available in the department office before preregistration in the spring term of their junior year. Those admitted to the Program preregister in Anthropology 391 for the fall term of their senior year. This course is supervised by the Department's Honors Committee composed of three faculty members.

In the spring term of the senior year students register for Anthropology 492 in which they write an honors thesis under the supervision of a faculty member. Further details of the Program may be obtained at the time of application.

Distribution Requirement

The distribution requirement in social sciences can be met in anthropology by any two courses offered by the Department of Anthropology. Courses cross-listed from other departments do not satisfy the distribution requirement. The social sciences distribution requirement is also satisfied by Archaeology 100 and any Anthropology course listed under the Archaeology Concentration (see p. 39).

Introduction to Archaeology (Archaeology 100)

101-102 Nature, Culture, and Human History: An Introduction to Anthropology 101 fall term; 102 spring term. Credit four hours per term. This is an integrated two-semester course, but either semester can be taken independently. M W F 11:15, discussion sessions held by arrangement. D. J. Greenwood, J. S. Henderson, and R. B. Thomas.

Anthropology is the study of human origins and diversity in biological, cultural, and historical perspective. This course applies these perspectives to the major topics listed below and directly addresses a variety of popular ideas held about human beings.

Fall term focus: *Culture and Biology: Human Origins* Major topics include human aggression and territoriality; ecology and human evolution; the development of the human capacity for culture; language origins, symbols, and the creation of multiple realities; cultural differences, ethnocentrism, and racism; the human "animal."

Spring term focus: *Culture and Biology: Human Diversity*

Major topics include sex differences and the incest taboo; the food quest and the division of labor; the universality of the family; alliance and the formation

of human groups; symbols, religious systems, and "truth;" cultural evolution-directionality and the idea of "progress."

103 Introduction to Cultural Anthropology Fall term. Credit three hours. Limited to freshmen and sophomores. T Th 9:05-10:30, discussion sections to be arranged. T. A. Gregor.

A comparative study of the organization of cultural behavior in systems of communications, technology, social relations, ritual, ideas, and sentiments; the relation of such systems to personal behavior and to continuity, change, and cultural transfer in history. Illustrative materials drawn largely from non-Western societies.

[116 The Study of Complex Societies Spring term. Credit three hours. Not offered in 1974-75.]

[118 Popular Cultural Anthropology Spring term. Credit three hours. Not offered in 1974-75.]

150 The Discovery of the Americas Fall term. Credit three hours.

For course description, see Freshman Seminars Program handouts.

Subsistence Agriculture in Transition (Rural Sociology 157, College of Agriculture and Life Sciences)

Introduction to the Scientific Study of Language (Linguistics 101-102)

Introduction to Art History: Beginnings of Civilization (History of Art 210)

221 The Biology of Man Spring term. Credit three hours. M W F 10:10

A survey of important biological characteristics of the human species with emphasis on human growth and development and the effects of environmental factors on the phenotypic expression of genetic traits. The interaction of various human populations with their environments, as seen in disease and nutritional stress, will be discussed with reference to case study material.

Individual Study in Archaeology and Related Fields (Archaeology 300)

301 Social Anthropology Fall term. Credit four hours. Open to juniors and seniors who have not had Anthropology 103. M W F 10:10. D. R. DeGlopper.

Major topics in social and cultural anthropology such as the comparative study of kinship and marriage, political and legal organization, ritual and symbolic systems, and cultural change, are examined in some detail. The definition of problems and the utility of various modes of explanation will be stressed.

[302 Language and Culture Spring term. Credit four hours. Not offered in 1974-75.]

303 Prehistoric Archaeology Spring term. Credit four hours. M W F 9:05.

A study of Old World prehistory from the origins of human society and culture through the beginnings of civilization. Emphasis will be given to the early African Stone Age, the origins and diffusion of agriculture, and the prehistoric background of Western civilization.

304 Biological Anthropology Spring term. Credit four hours. M W F 1:25. R. B. Thomas.

Man's origin, evolution, and present-day biological variability is examined from an adaptive perspective. The first half of the course examines contemporary diversity within the human species utilizing an ecological and microevolutionary approach. Topics such as human adaptation and ecology, population genetics, growth and development provide a basis for understanding this biological diversity, and ultimately the processes underlying man's evolution. The second half of the course is concerned with primate and human evolution. Structural, functional, and behavioral comparisons are made between living primates and, when possible, used in the interpretation of fossil evidence.

305 Psychological Anthropology Spring term. Credit four hours. T Th 9:05-10:30. T. A. Gregor.

A consideration of problems selected to illustrate the mutual relevance of psychology and anthropology, and the interrelations of culture and personality.

313 Urban Anthropology Spring term. Credit four hours. M W F 9:05. R. J. Smith.

An examination of sociocultural structure and process in urban settings, with emphasis on the role of rural migrants, the relationship of urbanism to political and economic development, the role of voluntary associations, and the adjustment of family and kinship groups to urban life. Emphasis on Asian, African, and Latin American urban centers.

[314 Applied Anthropology Spring term. Credit four hours. Not offered in 1974-75.]

322 Comparative Religious Systems Spring term. Credit four hours. T Th 11:15-12:30.

A survey of anthropological approaches to the study of myth, ritual, and world view taken as symbolic systems. The general characteristics of symbol systems, how they are perpetuated and elaborated, and their role in shaping social life will be explored. The social and psychological functions of myth and ritual in primitive and complex societies will be compared. An attempt will be made to discover what conditions are conducive to or inhibit radical symbolic transformations and what the implications of such changes might be.

323 Kinship and Social Organization Fall term. Credit four hours. M W F 11:15. B. Lambert.

The development of kinship studies, analysis of the family, unilineal and bilateral systems of kinship and

marriage. The study of kinship terminology. Kinship in small-scale and complex societies. Political, economic, and religious aspects of kinship organization.

326 Economic Anthropology Spring term. Credit four hours. M W F 2:30. D. J. Greenwood.

Economic anthropology attempts to access the cross-cultural utility of formal economic theory while also characterizing the operations and structures of primitive and peasant economies. Because strongly held Western preconceptions about the nature of economic things block most attempts to understand unfamiliar economies, much of the course focuses on the analysis of the variety of definitions of economizing and economic systems that we employ and their implications for cross-cultural studies. After these problems have been examined, the course considers formal and substantive strategies of analysis; the problem of economic rationality; and also provides a brief critique of theories of economic development.

329 Politics and Culture Fall term. Credit four hours. M W F 11:15. M. E. Meeker.

The study of politics in the social sciences is to a great extent based upon universalized conceptions of human motivations and their place in a social order. The limitations of these conceptions are explored by considering the cultural context of politics. This problem is raised by a study of the particular concepts of polity in diverse traditions. An understanding of politics in relation to the generic expressive forms of a tradition is also considered.

330 Ethnology of Native North America Spring term. Credit four hours. M W F 10:10. B. Lambert and R. J. Smith.

A general survey of the ethnography of North America, with emphasis on problems and topics to which the North American materials are most relevant. Selected cultures will be considered in some detail. Contemporary developments will be discussed, with an emphasis on Pan-Indianism and nativistic revivals.

[332 Ethnology of South America] Spring term. Credit four hours. Not offered in 1974-75.]

333 Ethnology of the Andean Region Spring term. Credit four hours. Hours to be arranged.

Cultural continuities in the development of Andean societies. The ecologic, archaeological, ethnohistoric, and contemporary ethnological record. The Andean heritage as a resource for "modernization."

334 Ethnology of Island Southeast Asia Spring term. Credit four hours. T Th 10:10. J. T. Siegel.

Postcolonial societies of Indonesia, the Philippines, and Malaysia will be examined in this course. Attention will focus on social and political organization and the forms of cultural expression with the aim of evaluating the adequacy of anthropological efforts to comprehend these cultures.

[335 Ethnology of Mainland Southeast Asia] Fall term. Credit four hours. Not offered in 1974-75.]

[336 Ethnology of Oceania] Fall term. Credit four hours. Not offered in 1974-75.]

337 Ethnology of the Near East Spring term. Credit four hours. M W F 1:25. M. E. Meeker.

An introduction to the social and political traditions of tribal and peasant peoples of North Africa and the Near East. Considerable attention will be devoted to the oral traditions of these peoples and the value of these traditions for providing an understanding of their religion, politics, and society.

[338 Ethnology of Africa] Spring term. Credit four hours. Not offered in 1974-75.]

[341 Culture and Society in South Asia] Fall term. Credit four hours. Not offered in 1974-75.]

343 Traditional Chinese Society and Culture Fall term. Credit four hours. M W F 1:25. D. R. DeGlopper.

Chinese society in the nineteenth and early twentieth centuries is considered as a complex, premodern society. Major topics include family and kinship; villages and their integration into local systems; voluntary and formal organizations; social stratification and mobility; and religion, ideology, and values.

344 Modern Chinese Society Spring term. Credit four hours. Prerequisite: Anthropology 343 or consent of the instructor. M W F 11:15. D. R. DeGlopper.

The emphasis is on changes in Chinese society and culture among the overseas Chinese, in Hong Kong and Taiwan, and in China proper.

345 Japanese Culture and Society Fall term. Credit four hours. M W F 9:05. R. J. Smith.

A survey of the social structure of Japan and a discussion of trends in urban and rural life during the past century. Topics to be emphasized include the family, ancestor worship, community and social organization, and urbanism and modernization.

[346 Ethnology of the United States] Spring term. Credit four hours. Not offered in 1974-75.]

[348 Iberian Culture and Society] Spring term. Credit four hours. Not offered in 1974-75.]

350 The Earliest Civilizations Fall term. Credit four hours. T Th 10:10. J. S. Henderson.

An archaeological approach to non-Western civilizations. Emphasis will be on the beginnings of civilization in Mesopotamia, Egypt, the Indus Valley and China; the emergence of complex societies in Mesoamerica and the Andes will also be discussed. Consideration will be given to the problems of defining and recognizing civilizations archaeologically and explaining their emergence.

354 Archaeology of the Americas I Fall term.
Credit four hours. M W F 9:05. T. F. Lynch.

A study of the prehistoric cultures of the New World. Major topics will include the entry of man, early adaptations to diverse environments, hunting and gathering people to the ethnographic present, and the beginnings of agriculture. Both North and South America will be discussed, but for the late periods the emphasis will shift to North America.

355 Archaeology of the Americas II Spring term.
Credit four hours. M W F 1:25. J. S. Henderson.

A consideration of the origins, development, and spread of the native civilizations of North and South America. Emphasis will be upon the prehistoric cultural developments in Mesoamerica and the Andes from the emergence of settled village life to the European discovery of the New World.

Rural Development and Cultural Change (Rural Sociology 355, College of Agriculture and Life Sciences)

[356 Mesoamerican Thought and Culture Fall term. Credit four hours. Not offered in 1974-75.]

[372 Human Biological Variation Spring term. Credit four hours. Not offered in 1974-75.]

[373 Physical Anthropology of the Living Fall term. Credit four hours. Not offered in 1974-75.]

374 Human Palaeontology Spring term. Credit four hours. T Th 3:35. K. A. R. Kennedy.

A broad survey of the fossil evidence for human evolution with special attention to skeletal-dental anatomy, geological contexts, palaeoecology, dating methods, archaeological associations, and current theories of primate phylogeny.

375 Ecological Anthropology Fall term. Credit four hours. Th 2:30-4. V. R. Dyson-Hudson.

Theories of Personality (Sociology 385)

391 Honors Seminar Fall term. Credit four hours. Open to majors in their junior year. Hours to be arranged. Staff.

412 Contemporary Anthropological Theory Fall term. Credit four hours. Consent of the instructor required. T Th 10:10. J. T. Siegel.

Selected developments in anthropological thought will be examined in terms of their antecedents. The work of anthropologists drawing on Freud, Weber, and de Tocqueville will be discussed.

[413 The History of Anthropology in the United States Fall term. Credit four hours. Not offered in 1974-75.]

414 Anthropology and History Fall term. Credit four hours. For majors in anthropology; nonmajors with consent of the instructors. M W F 2:30. D. J. Greenwood and R. J. Smith.

This seminar works on the assumption that cultural anthropology is an historical discipline in two ways. First, contemporary anthropology is a product of the Western historical experience. Second, many of the concerns of anthropology can be dealt with only from an historical perspective. The seminar will have a specific topical focus each time it is offered. For 1974-75, the topic will be the city and the country in history.

415 Classic Ethnographies Spring term. Credit four hours. Enrollment limited to undergraduate majors and graduate students in the Department of Anthropology. T 1:25-3:25. D. R. DeGlopper.

Although contemporary cultural and social anthropologists use many theoretical approaches and models, they all write ethnographies—detailed accounts of particular societies and cultures. A few ethnographic works generally regarded as classics will be examined in detail, and alternate ways of explaining the same facts will be explored. The course will focus on problems of description and explanation, and is directed toward the problem of how to write a good ethnography and how to judge those already written.

Pre-Columbian Art and Archaeology (History of Art 415)

417 Social Thought and Social Studies Fall term. Credit four hours. T 3:35-5:30. M. E. Meeker.

The seminar is designed to provide an opportunity to read during one semester a number of the books which have had an important influence on current sociological and anthropological thought. These readings will be drawn from the works of de Tocqueville, Durkheim, Marx, Weber, and Freud. They will be compared and discussed with the aim of understanding the variety of problems that have been raised by these authors as well as how these problems persist in current sociological and anthropological studies.

[418 Ethnohistory Spring term. Credit four hours. Not offered in 1974-75.]

[421 Comparative Social Systems Fall term. Credit four hours. Not offered in 1974-75.]

424 Myth, Ritual, and Symbol Fall term. Credit four hours. M W F 2:30. B. Lambert.

This course is concerned with the nature of consciousness of those peoples usually studied by anthropologists. The starting point is the analysis of ritual, especially rites of passage, and of conceptions of time. Topics such as myth, curing rites, and millenarianism will be considered in the light of various interpretations.

437 Islam and Islamic Societies Spring term. Credit four hours. T 3:35-5:30. M. E. Meeker.

The historical and sociological study of societies with strong Islamic traditions has tended to focus upon certain problems more or less uniquely associated with these societies. The seminar examines the Islamic tradition in the light of these problems. Read-

ings include interpretations of Islamic thought, some Islamic literature, and historical and sociological studies of Islamic societies.

451 Archaeological Boundaries: The Arts Fall term. Credit four hours. Prior knowledge of archaeology not required. Enrollment limited to twenty students. T 2:30-4:25. Only grades of S and U will be given. R. Ascher.

An experimental course focusing on areas where the arts and archaeology touch. Problems for individual study have been drawn from American studies, history, literature, cinema, dance, theatre, architecture, ethnology, and art history. One reading is about a kingdom fabricated from modern junk; another is about photographing an ancient city in the midst of war. Instead of conventional sources, stress is on America after the invention of the tin can. Thus excavations of a slave cabin, immigration station, western ranch, and an automobile graveyard are used for illustration.

[452 Archaeological Boundaries: The Sciences] Spring term. Credit four hours. Not offered in 1974-75.]

453-454 Constructions and Visualizations 453 fall term; 454 spring term (not offered spring 1975). Credit four hours per term. Enrollment limited. Th 2:30-3:45, and individually at other times. Only grades of S and U will be given. R. Ascher.

Anthropology expressed through three-dimensional constructions, tapes, drawings, dance, photographs, and other essentially nonwritten forms. Examples are an abstract sculpture about the idea of race, a photographic essay on an aspect of United States ethnology, and a model of an ancient scientific instrument. This course is devoted to original projects. A work plan by one person or by a few people intending to work together should be submitted any time prior to the start of the term. Eventually, these plans become the syllabus of the course. Class meetings are devoted to critical discussions of work in progress.

471 Laboratory and Field Methods in Biological Anthropology I Fall term. Credit five hours. T Th 10:10-12:05. K. A. R. Kennedy.

Practical exercises and demonstrations of modern approaches to the methodology of physical anthropology. Emphasis upon comparative primate anatomy, the human palaeontological record, description of skeletal and living subjects, palaeopathology, skeletal maturation, and relevant field techniques for the archaeologist.

[472 Laboratory and Field Methods in Biological Anthropology II] Spring term. Credit five hours. Not offered in 1974-75.]

[479 Human Ethology] Spring term. Credit three hours. Not offered in 1974-75.]

492 Honors Thesis Spring term. Credit four hours. Prerequisite: Anthropology 391. Hours to be arranged. Staff.

[493 Seminars in Archaeology] Fall term. Credit to be arranged. Not offered in 1974-75.]

[494 Seminars in Archaeology] Spring term. Credit to be arranged. Not offered in 1974-75.]

495 Social Relations Seminar (also Sociology 497) Spring term. Credit four hours. Open only to seniors majoring in social relations. T 11:15-1:25. T. A. Gregor.

497-498 Topics in Anthropology 497 fall term; 498 spring term. Credit to be arranged. Prerequisite: consent of the instructor. Hours to be arranged. Staff.

Graduate Seminars

The following seminars are for graduate students but are open to qualified seniors by consent of the instructor, unless otherwise indicated. Those seminars with announced special topics may be repeated.

For complete descriptions of courses numbered 600 or above, consult the graduate field representative.

Southeast Asia Seminar: Thailand (Asian Studies 602)

[602 The Design of Field Research] Fall term. Credit four hours. Not offered in 1974-75.]

[603 Human Biology and Cultural Behavior] Fall term. Credit four hours. Not offered in 1974-75.]

Social Change in Community and Region (Rural Sociology 606, College of Agriculture and Life Sciences)

607-608 Special Problems in Anthropology 607 fall term; 608 spring term. Credit and hours to be arranged. Staff.

610 The Anthropological Study of Art Spring term. Credit four hours. Th 3:35-5:30. J. T. Siegel.

[612 History of Anthropological Thought] Fall term. Credit four hours. Not offered in 1974-75.]

613 Contemporary Anthropological Theory Spring term. Credit four hours. W 2:30-4:25. B. Lambert.

617 Conceptual Systems in Anthropology Fall term. Credit four hours. Th 3:35-5:30. J. T. Siegel.

[618 Cultural Processes: Role Theory and Cultural Change] Fall term. Credit four hours. Not offered in 1974-75.]

[620 Ethnolinguistics] Spring term. Credit four hours. Not offered in 1974-75.]

[623 Social Systems: The Anthropology of Face-to-Face Interaction] Spring term. Credit four hours. Not offered in 1974-75.]

[626 Problems in Economic Anthropology] Spring term. Credit four hours. Not offered in 1974-75.]

[628 Political Anthropology: Historiography of Non-Western Peoples] Spring term. Credit four hours. Not offered in 1974-75.]

[630 North America] Spring term. Credit four hours. Not offered in 1974-75.]

[631 Middle America] Fall term. Credit four hours. Not offered in 1974-75.]

632 Tribal Peoples of Lowland South America Fall term. Credit four hours. Th 3:35-5:30. T. A. Gregor.

[633 Andean Research] Fall term. Credit four hours. Not offered in 1974-75.]

[634 Southeast Asia: Readings in Special Problems] Fall term. Not offered in 1974-75.]

635 Southeast Asia: Readings in Special Problems Spring term. Credit and hours to be arranged. L. Sharp.

[640 South Asia] Spring term. Credit four hours. Not offered in 1974-75.]

[641-642 South Asia: Readings in Special Problems] Either term. Not offered in 1974-75.]

[643 China] Spring term. Credit four hours. Not offered in 1974-75.]

[645 Japan] Fall term. Credit four hours. Not offered in 1974-75.]

[648 Comparative Studies in Complex Societies: Agrarian Civilizations] Spring term. Credit four hours. Not offered in 1974-75.]

[664 Problems in Archaeology: Europe] Spring term. Credit four hours. Not offered in 1974-75.]

666 The Discovery of America Spring term. Credit four hours. W 2:30-4:25. T. F. Lynch.

[667 Origins of Mesoamerican Civilization] Fall term. Credit four hours. Not offered in 1974-75.]

Architecture in Its Cultural Context (Architecture 667-668)

[673 Human Adaptation] Fall term. Credit four hours. Not offered in 1974-75.]

[675 Physical Anthropology: History and Theory] Spring term. Credit four hours. Not offered in 1974-75.]

676 Physical Anthropology: Problems, Methods, and Theory Spring term. Credit four hours. Hours to be arranged. K. A. R. Kennedy and R. B. Thomas.

[678 Palaeoanthropology: South Asia] Spring term. Credit four hours. Not offered in 1974-75.]

698-699 The Teaching of Anthropology 698 fall term; 699 spring term. May only be taken in sequence. Credit two hours per term. Hours to be arranged. Staff.

Macrostructural Research Methods (Rural Sociology 716, College of Agriculture and Life Sciences)

Peasants, Water, and Development (Rural Sociology 754, College of Agriculture and Life Sciences)

901-902 Field Research 901 fall term; 902 spring term. Either or both terms. Credit to be arranged. Staff.

Archaeology

A. Ramage (history of art) chairman; R. Ascher (anthropology), A. L. Bloom (geological sciences), J. E. Coleman (Classics), K. A. Coleman (archaeology), W. W. Cummer (architecture), R. T. Farrell (English), J. S. Henderson (anthropology), S. W. Jacobs (architecture), G. W. Olson (soil science), I. Rabinowitz (Biblical and Hebrew studies), T. F. Lynch (archaeology), J. F. Scott (history of art)

Archaeology at Cornell is an interdisciplinary subject. The concentration draws upon the teaching and research interests of faculty from many departments in order to present a broad view of the archaeological process. Undergraduates can elect a concentration in archaeology in addition to their major. The concentration will provide an adviser to help the student in choosing courses which will give a strong basic understanding of the field. To concentrate in archaeology the student must complete Archaeology 100 with a grade of C or better and at least four advanced courses in archaeology chosen from the offerings of two or more departments. In addition, every student will be expected to have some practical experience in archaeological field work on a project approved by the concentration adviser. The Hirsch bequest enables the concentration to offer a limited number of grants for travel and subsistence to students working at excavations sponsored either by Cornell University or other approved institutions.

Distribution Requirement

The distribution requirement can be satisfied in the social sciences, humanities, or expressive arts by taking Archaeology 100 and a second archaeological course chosen from the College of Arts and Sciences' courses listed below. Specifically the distribution requirement in the social sciences can be fulfilled with Archaeology 100 and any one of the following: Anthropology 150, 303, 350, 354, 355, 356, 451, 452, 453, 454, 493, 494, 664, 666, 667; in the

humanities with Archaeology 100 and any one of the following: Classics 220, 221, 320, 629, 630; and in the expressive arts with Archaeology 100 and any one of the following: History of Art 210, 215, 315, 316, 322, 323, 324, 415, 431, 488.

100 Introduction to Archaeology Spring term. Credit three hours. Open to all students whether or not they elect the concentration. T Th 1:25 and M 4. K. A. Coleman and guest lecturers.

An introduction to the techniques and problems involved in excavating and analyzing excavated material. Afternoon lectures will introduce the student to Cornell faculty and guests presenting different cultural and scientific aspects of archaeological research exemplified in their own work. These lectures will be open to the public.

Methodology and Interdisciplinary Approaches

300 Individual Study in Archaeology and Related Fields Fall term. Credit to be arranged. Prerequisites: Archaeology 100 and consent of the instructor. Hours to be arranged. Concentration advisers.

With the guidance of a faculty member, the student pursues topics of particular interest.

The Earliest Civilizations (Anthropology 350)

Archaeological Boundaries: The Arts (Anthropology 451)

[Archaeological Boundaries: The Sciences (Anthropology 452) Not offered in 1974-75.]

Constructions and Visualizations (Anthropology 453-454)

[Seminars in Archaeology (Anthropology 493-494) Not offered in 1974-75.]

Introduction to Architectural Aspects of Archaeological Field Work (Architecture AAR 540, College of Architecture, Art and Planning)

Practice in Architectural Aspects of Archaeological Field Work (Architecture AAR 541, College of Architecture, Art, and Planning)

Practice in Architectural Aspects of Archaeological Field Work (Architecture AAR 541, College of Architecture, Art, and Planning)

Design and Conservation (Architecture AAR 545, College of Architecture, Art, and Planning)

Documentation for Preservation Planning (Architecture AAR 546, College of Architecture, Art, and Planning)

New World Archaeology

The Discovery of the Americas (Anthropology 150)

Pre-Columbian Art (History of Art 315)

Archaeology of the Americas I (Anthropology 354)

Archaeology of the Americas II (Anthropology 355)

[Mesoamerican Thought and Culture (Anthropology 356) Not offered in 1974-75.]

[Seminar in Pre-Columbian Art and Archaeology (History of Art 415) Not offered in 1974-75.]

The Discovery of America (Anthropology 666)

[Origins of Mesoamerican Civilization (Anthropology 667) Not offered in 1974-75.]

Old World Archaeology

[Introduction to Art History: Beginnings of Civilization (History of Art 210) Not offered in 1974-75.]

Introduction to Art History: The Classical World (History of Art 215)

Introduction to Classical Archaeology (Classics 220)

Minoan-Mycenaean Art and Archaeology (Classics 221)

History of Pre-Industrialized Building (Architecture AAR 244, College of Architecture, Art, and Planning)

Prehistoric Archaeology (Anthropology 303)

Art of the Ancient Near East (History of Art 316)

[The Archaeology of Classical Greece (Classics 320) Not offered in 1974-75.]

Arts of the Roman Empire (History of Art 322)

[Painting in the Greek and Roman World (History of Art 323) Not offered in 1974-75.]

[Architecture in the Greek and Roman World (History of Art 324) Not offered in 1974-75.]

[The Ancient Near East (Architecture AAR 340, College of Architecture, Art, and Planning) Not offered in 1974-75.]

The Classical World (Architecture AAR 341, College of Architecture, Art, and Planning)

Greek Sculpture (History of Art 431)

[Traditional Arts in Southeast Asia (History of Art 488) Not offered in 1974-75.]

Problems in Minoan and Mycenaean Archaeology (Classics 629)

[Seminar in Classical Greek Archaeology (Classics 630) Not offered in 1974-75.]

[Seminar in the Architecture of the Ancient Near East (Architecture AAR 640, College of Architecture, Art, and Planning) Not offered in 1974-75.]

[Seminar in Greek Architecture (Architecture AAR 641, College of Architecture, Art, and Planning) Not offered in 1974-75.]

[Problems in Archaeology: Europe (Anthropology 664) Not offered in 1974-75.]

Asian Studies

T. L. Mei, chairman; B. R. Anderson, D. E. Ashford, M. J. Barnett, M. G. Bernal, N. C. Bodman, K. Brazzell, R. D. Colle, D. R. DeGlopper, A. T. Dotson, J. M. Echols, C. E. Elliott, E. C. Erickson, R. T. Freeman, J. W. Gair, M. D. Glock, F. H. Golay, A. B. Griswold, L. W. Hazlehurst, G. C. Hickey, F. E. Huffman, R. B. Jones, E. H. Jorden, G. McT. Kahin, G. B. Kelley, K. A. R. Kennedy, A. T. Kirsch, T. C. Liu, J. B. Long, R. D. MacDougall, J. McCoy, J. W. Mellor, G. M. Messing, D. P. Mozingo; S. J. O'Connor, T. J. Pempel, C. A. Peterson, J. T. Siegel, R. J. Smith, J. U. Wolff, O. W. Walters, K. M. Wong, D. K. Wyatt, M. W. Young

The applicant for admission to the major in Asian studies must have completed at least one course selected from among those listed under the Department of Asian Studies and must be recommended by the instructor in charge of that course. The student must have received a minimum grade of C in this course and in all other courses taken in the Department. The candidate for the A.B. degree with a major in Asian studies is required to complete two courses at the 200 level in one of the Asian languages offered at Cornell. The major consists of at least thirty additional hours (which may include further language work) selected by the student in consultation with his or her adviser from among the courses listed under the Department of Asian Studies numbered 300 and above. Majors normally concentrate their work in at least one of the disciplines and in one of the following areas: China, Japan, South Asia, Southeast Asia. The student may also be encouraged to consider the possibility of a double major combining Asian studies with one of the disciplines.

Honors Program

Candidates for honors must maintain a cumulative average of B in courses in the humanities and social sciences. They must also maintain an average of B in courses in the Department. Candidates should take at least one of the seminars listed below selected in consultation with their adviser. Students may, with the approval of their adviser, substitute for this requirement an advanced course in which they complete a considerable body of independent work. Honors candidates will also take Asian Studies 402 in which they write the senior essay. They may also en-

roll in Asian Studies 401 in the senior year but this course is not required. At the end of the junior year, students should consult with the professor with whom they plan to write their paper.

Distribution Requirement

The distribution requirement in the humanities may be satisfied in Asian studies by six hours of any 300-level courses, which form a sequence, listed under Asia, Literature, and Religion.

Concentration in Southeast Asia Studies

A candidate for the Bachelor of Arts or Bachelor of Science degree at Cornell may take a concentration in Southeast Asia studies by completing fifteen hours of course work, including a history course and three courses or seminars at the intermediate or advanced level, two of which may be Southeast Asian language courses. Students taking a concentration in Southeast Asia studies are members of the Southeast Asia Program and are assigned an adviser from the Program faculty. Such students are encouraged to commence work on a Southeast Asian language and to take advantage of summer intensive language training.

Intensive Language Program (FALCON)

For those students desiring to accelerate their acquisition of Chinese or Japanese language, Cornell is offering a Full-Year Asian Language Concentration Intensive Language Program. Students in this program will spend six hours a day for the full academic year studying nothing but language and will be able to compress approximately four years of study into one.

Freshman Seminars

101 Ideas and Images in Japanese Culture Fall term. Credit three hours. K. Brazzell.

An introduction to traditional Japanese culture. Recurring themes will be approached from a variety of disciplinary perspectives, including literature, drama, religion, music, and the visual arts. Among the topics investigated are: the Shinto view of man and nature, the way of the warrior, Buddhist images of heaven and hell, and Zen and the arts.

Freshman Seminar in Japanese Studies (Government 133)

Asia—Literature and Religion Courses

201 Introduction to Hinduism Fall term. Credit four hours. M W F 2:30. J. B. Long.

An introduction to the beliefs and practices in Hinduism from the beginning to the present time.

202 Introduction to Buddhism Spring term.
Credit four hours. M W F 2:30. J. B. Long.

A study of the development of the various systems of thought and institutions in Buddhist India, China, and Japan.

371 Chinese Philosophical Literature Fall term.
Credit four hours. M W F 10:10. T. L. Mei.

Readings in English translation of Confucian, Taoist, and Buddhist works.

372 Chinese Imaginative Literature Spring term.
Credit four hours. M W F 10:10. K. M. Wong.

Readings in English translation of poetry, classical prose, fiction, and drama.

[373 Twentieth-Century Chinese Literature Fall term. Credit four hours. K. M. Wong. Not offered in 1974-75.]

375 Japanese Poetry and Drama Fall term.
Credit four hours. M W F 11:15. K. Brazell.

A study of selected poets and dramatists in English translation. The course covers works from the eighth through the eighteenth century including Hitomaro, Ki no Tsurayuki, Saigyō, Bashō, Zeami, and Chikamatsu.

376 Modern Japanese Fiction Spring term.
Credit four hours. M W F 11:15. K. Brazell.

A study in English translation of the major novelists and short story writers of the twentieth century. Included are works by Soseki, Akutagawa, Tanizaki, Dazai, Kawabata, Mishima, and Oe.

[377 Japanese Narrative Literature Fall term. Credit four hours. K. Brazell. Not offered in 1974-75.]

379 Southeast Asian Literature in Translation Fall term. Credit four hours. T 2:30-4:25. J. M. Echols.

A survey of the literature of Southeast Asia with special attention to several masterpieces.

402 Japanese Nō Theater Spring term. Credit four hours. Hours to be arranged. K. Brazell.

A study of the various elements that make up a Nō performance: text, singing, orchestra, dance, and costuming, as well as Zeami's theories of aesthetics and training. The course may be taken completely in English, but students with some background in Japanese will also work with original texts.

405 Issues and Problems in Indian Philosophy Fall term. Credit four hours. T Th 11:15. J. B. Long.

A study of the central philosophical ideas in the *Upanishads*, *Bhagavad Gītā*, and in the writings of Shankara and Rāmānuja.

406 Paths of Liberation in the Bhagavad Gītā Spring term. Credit four hours. T Th 11:15. J. B. Long.

A detailed study of the religious and philosophical teachings of the *Bhagavad Gītā*.

[407 Myths and Symbols in Indian Religion Fall term. Credit four hours. Not offered in 1974-75.]

[408 Warfare and Civilization in the Mahābhārata

Spring term. Credit four hours. Not offered in 1974-75.]

Asia—General Courses

401 Asian Studies Honors Course Fall term.
Credit four hours. Staff.

Intended for seniors who have been admitted to the Honors Program. Supervised reading and research on the problem selected for Honors work.

402 Asian Studies Honors: Senior Essay Either term. Credit four hours. Prerequisite: admission to the Honors Program.

The student, under faculty direction, will prepare an Honors essay.

403-404 Asian Studies Supervised Reading Either or both terms. Credit to be arranged. Prerequisite: consent of the instructor. Open to majors and other qualified students.

Provides the opportunity to read intensively under the direction of a member of the staff.

Economics of Agricultural Development (Agricultural Economics 464, College of Agriculture and Life Sciences)

Food, Population, and Employment (Agricultural Economics 660, College of Agriculture and Life Sciences)

Communication in the Developing Nations (Communication Arts 524, College of Agriculture and Life Sciences)

Comparative Mass Media (Communication Arts 526, College of Agriculture and Life Sciences)

Philippine Agricultural Development: Policy and Administration (International Agriculture 601, College of Agriculture and Life Sciences)

Applications of Sociology to Development Programs (Rural Sociology 751, College of Agriculture and Life Sciences)

Architecture and Planning in the Orient (Architecture 345-Planning 403, College of Architecture, Art, and Planning)

The seven courses listed above will count as College of Arts and Sciences credit for Asian studies majors only.

Urban Anthropology (Anthropology 313)

Comparative Religious Systems (Anthropology 322)

Politics and Culture (Anthropology 329)

Politics and Modernization (Government 338)

Politics of Industrial Societies (Government 348)

[Political Role of the Military (Government 349)
Not offered in 1974-75.]

Comparative Revolutions (Government 350)

The United States and Asia (Government 387)

Seminar in Political Development and Social Change (Government 537)

Seminar in the Politics of Communalism (Government 642)

Seminar in Comparative Communism (Government 646)

Seminar in the International Relations of Asia (Government 687)

Introduction to Asian Civilizations: Origins to 1600 (History 190)

Introduction to Asian Civilizations: from 1600 (History 191)

Supervised Reading (History 703-704)

Introduction to Art History: Asian Traditions (History of Art 280)

[Studies in Indian and Southeast Asian Art (History of Art 386) Not offered in 1974-75.]

Ceramic Art of Asia (History of Art 482)

[Studies in Buddhist Art (History of Art 483) Not offered in 1974-75.]

[Problems in Asian Art (History of Art 580) Not offered in 1974-75.]

Supervised Readings (History of Art 591-592)

China—Area Courses

Traditional Chinese Society and Culture (Anthropology 343)

Modern Chinese Society (Anthropology 344)

[China (Anthropology 643) Not offered in 1974-75.]

The Foreign Policy of China (Government 390)

History of China up to Modern Times (History 393)

History of China in Modern Times (History 394)

Undergraduate Seminar in Medieval Chinese History (History 492)

Self and Society in Late Imperial and Twentieth Century China (History 493)

Chinese Historiography and Source Materials (History 691)

Problems in Modern Chinese History (History 693-694)

Seminar in Medieval Chinese History (History 791-792)

Seminar in Modern Chinese History (History 793-794)

Art of China (History of Art 383)

Chinese Painting (History of Art 385)

[Problems in Chinese Art (History of Art 584)
Not offered in 1974-75.]

[Studies in Chinese Painting (History of Art 586)
Not offered in 1974-75.]

Sino-Tibetan Linguistics (Linguistics 662)

Other courses dealing extensively with China are Anthropology 313, 322, 329; Government 338, 348, 350, 387, 646, 687; History 190, 191; History of Art 280, 482, 483, 580; Architecture 345-Planning 403 (College of Architecture, Art and Planning).

China—Language Courses

Basic Course (Chinese 101-102)

Cantonese Basic Course (Chinese 111-112)

Elementary Hokkien Chinese (Chinese 131-132)

Intermediate Chinese I (Chinese 201-202)

Chinese Conversation (Chinese 203-204)

Intermediate Cantonese (Chinese 211-212)

Introduction to Classical Chinese (Chinese 213-214)

Intermediate Chinese II (Chinese 301)

Intermediate Chinese III (Chinese 302)

Chinese Conversation—Intermediate (Chinese 303-304)

Chinese Philosophical Texts (Chinese 314)

T'ang and Sung Poetry (Chinese 320)

History of the Chinese Language (Chinese 401-402)

Linguistic Structure of Chinese: Phonology and Morphology (Chinese 403)

[Linguistic Structure of Chinese: Syntax (Chinese 404) Not offered in 1974-75.]

Chinese Dialects (Chinese 405)

Readings in Modern Chinese Literature (Chinese 411-412)

Classical Chinese Prose (Chinese 413)

[Pre-T'ang Poetry (Chinese 416) Not offered in 1974-75.]

Chinese Poetic Drama (Chinese 419)

Traditional Fiction (Chinese 420)

Directed Study (Chinese 421-422)

Readings in Shorter Works of Fiction (Chinese 423)

Readings in Literary Criticism (Chinese 424)

Readings in Folk Literature (Chinese 430)

[Seminar in Chinese Poetry and Poetics (Chinese 603) Not offered in 1974-75.]

[Seminar in Chinese Fiction (Chinese 605) Not offered in 1974-75.]

[Seminar in Chinese Folk Literature (Chinese 609) Not offered in 1974-75.]

Advanced Directed Reading (Chinese 621-622)

Japan—Area Courses

Japanese Culture and Society (Anthropology 345)

[Japan (Anthropology 645) Not offered in 1974-75.]

Freshman Seminar on Japanese Studies (Government 133)

Politics in Contemporary Japan (Government 346)

[Political Modernization and Japan (Government 649) Not offered in 1974-75.]

Art of Japan (History of Art 384)

Masters of Japanese Prints (History of Art 481)

Other courses dealing extensively with Japan are Anthropology 313, 322, 329; Government 348, 387, 687; History 190, 191; History of Art 280, 482, 483, 580; and Architecture 345-Planning 403 (College of Architecture, Art and Planning).

Japan—Language Courses

Basic Course (Japanese 101-102)

Intermediate Japanese I (Japanese 201-202)

Japanese Conversation (Japanese 203-204)

Intermediate Japanese II (Japanese 301-302)

Japanese Conversation—Intermediate (Japanese 303-304)

Introduction to Literary Japanese (Japanese 305-306)

Advanced Japanese (Japanese 401-402)

Linguistic Structure of Japanese (Japanese 404)

Intermediate Literary Japanese (Japanese 405-406)

Directed Readings (Japanese 421-422)

[Introduction to Japanese Reading for Students of Chinese (Japanese 431-432) Not offered in 1974-75.]

Intensive Course (FALCON 161-162)

South Asia—Area Courses

[Culture and Society in South Asia (Anthropology 341) Not offered in 1974-75.]

[Seminar: South Asia (Anthropology 540) Not offered in 1974-75.]

[South Asia: Readings in Special Problems (Anthropology 641-642) Not offered in 1974-75.]

[Palaeoanthropology: South Asia (Anthropology 678) Not offered in 1974-75.]

Architecture in Its Cultural Context (Architecture 667-668, College of Architecture, Art, and Planning)

[Studies in Indian and Southeast Asian Art (History of Art 386) Not offered in 1974-75.]

India as a Linguistic Area (Linguistics 341)

Dravidian Structures (Linguistics 440)

Indo-Aryan Structures (Linguistics 442)

Comparative Indo-European Linguistics (Linguistics 631-632)

[Elementary Pall (Linguistics 640) Not offered in 1974-75.]

Elementary Sanskrit (Linguistics 641-642)

Comparative Indo-Aryan (Linguistics 644)

[Comparative Dravidian (Linguistics 646) Not offered in 1974-75.]

Seminar (Linguistics 700)

Directed Research (Linguistics 701-702)

Other courses dealing extensively with South Asia are Anthropology 322; Asian Studies 201, 202, 405, 406, 407, 408; Government 338, 387, 687; History 190, 191, History of Art 280, 380, 386, 482, 483, 580; Agricultural Economics 464; Communication

Arts 524, 526; and Rural Sociology 751 (College of Agriculture and Life Sciences).

South Asia—Language Courses

Basic Course (Hindi-Urdu 101-102)

Hindi Reading (Hindi 201-202)

Composition and Conversation (Hindi 203-204)

Readings in Hindi Literature (Hindi 301-302)

Advanced Composition and Conversation (Hindi 303-304)

Advanced Hindi Readings (Hindi 305-306)

History of Hindi (Hindi 401)

Seminar in Hindi Linguistics (Hindi 700)

Basic Course (Sinhalese 101-102)

Sinhalese Reading (Sinhalese 201-202)

Composition and Conversation (Sinhalese 203-204)

Basic Course (Tamil 101-102)

[Basic Course (Telugu 101-102) Not offered in 1974-75.]

[Telugu Reading (Telugu 201-202) Not offered in 1974-75.]

Southeast Asia—Area Courses

Ethnology of Island Southeast Asia (Anthropology 334)

[Ethnology of Mainland Southeast Asia (Anthropology 335) Not offered in 1974-75.]

Conceptual Systems in Anthropology (Anthropology 617)

Southeast Asia: Readings in Special Problems (Anthropology 635)

304 Indochina (also Government 331) Fall term. Credit four hours. M W F 11:15-12:30. G. McT. Kahin.

The modern political development of Cambodia, Laos, and Vietnam. Attention will be given to the efforts of outside powers, especially France and the United States, to control and shape this process.

601 Southeast Asia Seminar: Contemporary Malaysia Fall term. Credit four hours. Hours to be arranged. M. L. Barnett.

602 Southeast Asia Seminar: Thailand Spring term. Credit four hours. Hours to be arranged. L. Sharp.

675 Southeast Asia Research Training Seminar

[Economic Policy and Development in Southeast Asia (Economics 365) Not offered in 1974-75.]

[Economic Growth in Southeast Asia (Economics 678) Not offered in 1974-75.]

[Government and Politics of Southeast Asia (Government 344) Not offered in 1974-75.]

Political Problems of Southeast Asia (Government 652)

Southeast Asian History to the Fourteenth Century (History 395)

[Southeast Asian History from the Fifteenth Century (History 396) Not offered in 1974-75.]

[Undergraduate Seminar in Southeast Asia in the Nineteenth Century (History 497) Not offered in 1974-75.]

Undergraduate Seminar in Southeast Asian History (History 498)

The Historiography of Southeast Asia (History 695-696)

Supervised Reading (History 703-704)

Seminar in Southeast Asian History (History 795-796)

[Studies in Indian and Southeast Asian Art (History of Art 386) Not offered in 1974-75.]

[Traditional Arts in Southeast Asia (History of Art 488) Not offered in 1974-75.]

[Old Javanese (Linguistics 651-652) Not offered in 1974-75.]

Seminar in Southeast Asian Languages (Linguistics 653-654)

[Malayo-Polynesian Linguistics (Linguistics 655-656) Not offered in 1974-1975.]

Seminar: Mon-Khmer Linguistics (Linguistics 657)

Directed Research (Linguistics 701-702)

Thai Dialectology (Linguistics 751)

Comparative Thai (Linguistics 752)

Tibeto-Burman Linguistics (Linguistics 753)

Other courses dealing extensively with Southeast Asia are Anthropology 313, 322, 329, 518; Government 338, 348, 350, 387, 687; History 190, 191; History of Art 280, 380, 482, 483, 580; Agricultural Economics 464; Communication Arts 524, 526 (College of Agriculture and Life Sciences); and Architecture 345-Planning 403 (College of Architecture, Art, and Planning).

Southeast Asia—Language Courses

Basic Course (Burmese 101-102)

Burmese Reading (Burmese 201-202)

Composition and Conversation (Burmese 203-204)

Advanced Burmese Reading (Burmese 301-302)

Basic Course (Cambodian 101-102)

Cambodian Reading (Cambodian 201-202)

Composition and Conversation (Cambodian 203-204)

Advanced Cambodian (Cambodian 301-302)

Structure of Cambodian (Cambodian 404)

[**Basic Course (Cebuano Bisayan 101-102)** Not offered in 1974-75.]

Basic Course (Indonesian 101-102)

Indonesian Reading (Indonesian 201-202)

Composition and Conversation (Indonesian 203-204)

[**Linguistic Structure of Indonesian (Indonesian 300)** Not offered in 1974-75.]

Readings in Indonesian and Malay (Indonesian 301-302)

[**Advanced Indonesian Conversation and Composition (Indonesian 303-304)** Not offered in 1974-75.]

Advanced Readings in Indonesian and Malay Literature (Indonesian 401-402)

Elementary Javanese (Javanese 131-132)

Intermediate Javanese (Javanese 133-134)

[**Basic Course (Tagalog 101-102)** Not offered in 1974-75.]

[**Tagalog Reading (Tagalog 201-202)** Not offered in 1974-75.]

[**Linguistic Structure of Tagalog (Tagalog 300)** Not offered in 1974-75.]

Basic Course (Thai 101-102)

Thai Reading (Thai 201-202)

Composition and Conversation (Thai 203-204)

Advanced Thai (Thai 301-302)

Thai Literature (Thai 303-304)

Directed Individual Study (Thai 401-402)

Basic Course (Vietnamese 101-102)

Vietnamese Reading (Vietnamese 201-202)

Composition and Conversation (Vietnamese 203-204)

Advanced Vietnamese (Vietnamese 301-302)

Directed Individual Study (Vietnamese 401-402)

Astronomy

M. O. Harwit, chairman; F. D. Drake, P. J. Gierasch, T. Gold, J. R. Houck, J. Rankin, C. E. Sagan, E. E. Salpeter, Y. Terzian, J. Veverka

Undergraduates interested in graduate work in astronomy should major in either physics or mathematics and take astronomy courses as electives. Graduate students must register with the instructor in charge of the desired course on regular registration days at the beginning of each term.

Distribution Requirement

The distribution requirement in physical sciences is met in Astronomy 101-102 or 111-112.

101 The World: Universe, Earth, Environment

Fall term. Credit four hours. Prerequisite: high school algebra. Lectures, M W F 9:05. Laboratory, M T W Th or F 2-4:25. J. R. Houck.

How do we measure the size of our galaxy and the size of the universe? What is the mass of the universe and how can we measure it? Is the universe round or flat? Does the behavior of light and of electrons change with the large scale evolution of the universe? How are the stars born; why do they shine and how do they die? Why are there different kinds of stars? What are the chemical elements and how were they formed in stars? Does the universe begin, evolve, and die, or has it always existed and will it always continue?

102 The World: Universe, Earth, Environment

Spring term. Credit four hours. Prerequisite: high school algebra. Lectures, M W F 12:20. Laboratory, M T W Th or F 2-4:25. C. E. Sagan.

How was the solar system formed? What are the environments of other planets like? What is the basic structure of the inside of the earth? Of our atmosphere? How about the other planets? How did the earth's surface and climate evolve? Will man catastrophically alter the earth? How did life arise? Does life exist elsewhere in the universe? Does intelligent life exist elsewhere? How can we find out?

111 Theories of the World: The Solar System, Planets, and Life

Fall term. Credit four hours. Intended for engineering and physical sciences freshmen. Prerequisite: introductory calculus or corequisite in Mathematics 111 or 191. Lectures, M W F 10:10. Laboratory, M T W Th or F 2-4:25. J. A. Burns.

The origin and formation of the solar system, celestial mechanics. The evolution of planetary atmos-

pheres. Prebiology and the origin of life. The detection of life elsewhere in the universe.

112 Theories of the World: Stars, Galaxies, and Cosmology Spring term. Credit four hours. Intended for engineering and physical sciences freshmen. Prerequisite: Introductory calculus or coregistration in Mathematics 111 or 191. Lecture, M W F 10:10. Laboratory, M T W Th or F 2-4:25. J. R. Houck.

The formation and evolution of stars. Special relativity. Supernovae, pulsars, quasars, and black holes. The interstellar medium. The structure and evolution of galaxies. Cosmology.

332 Elements of Astrophysics Fall term. Credit three hours. Prerequisites: calculus and a course in modern physics. M W F 11:15. Y. Terzian.

Physical laws of radiation. Size, mass, and age of stars, galaxies, and the universe; stellar evolution and the formation of heavy chemical elements; interstellar matter and star formation. Pulsars and quasars. An introduction to cosmology. This course is of particular value to students in fields related to astronomy and space science.

340 Special Topics in Astronomy Either term. Credit two to four hours. Prerequisite: consent of the instructor. Staff.

Instruction in selected topics for qualified students according to their needs and preparation. Observational techniques and instrumentation. Binary stars, orbital computation, coordinate measurement, photometry, and spectroscopy. Special attention to the problems of science teachers.

431 Introduction to Astrophysics and Space Science Fall term. Credit three hours. Prerequisites: Physics 214 and 318 or the equivalent. There are no astronomy course prerequisites. M W F 10:10. Staff.

Dynamics of planetary and stellar systems. Interstellar magnetic fields, cosmic rays, and radio emission. Comets, meteorites, and micrometeorites. This course is intended for advanced undergraduate and new graduate students who intend to pursue careers in astronomy and space science.

432 Introduction to Astrophysics and Space Science Spring term. Credit three hours. Prerequisite: Astronomy 431 or consent of instructor. M W F 10:10. Staff.

Interstellar dust and gas. Evolution of the Strömgren sphere. Star formation. Stellar structure and evolution. Binary, variable, and peculiar stars. Nuclear synthesis in stars. Stellar atmospheres. Abundance of the chemical elements. Interplanetary gas and dust. This course is intended for advanced undergraduate and new graduate students who intend to pursue careers in astronomy and space science.

490 Senior Seminar Spring term. Credit two hours. Intended primarily for physical science majors in their senior year. Prerequisites: Physics 214 and 318 or equivalent. Hours to be arranged. T. Gold.

Selected topics of solar system and stellar astronomy; topics of high energy astrophysics and cosmology.

For complete descriptions of the following graduate courses see the *Announcement of the Graduate School: Course Descriptions*. If the course is not included there, consult the graduate field representative.

509 General Relativity (Physics 553)

510 Applications of General Relativity (Physics 554)

520 Observational Radio and Infrared Astronomy

521 Radio and Infrared Astronomy: Interstellar Medium, Pulsars, Galaxies, Quasars

530 Nuclear Astrophysics

550 Radiative Transfer, Stellar and Solar Atmospheres

560 Theory of Stellar Structure and Evolution

570 Physics of the Planets

571 Planetary Rotation, Tides, and Physics of Interiors

575 Motions in Planetary Atmospheres

579 Celestial Mechanics

620 Seminar: Advanced Radio Astronomy

633 Infrared Astronomy

640 Advanced Study and Research

671 Special Problems in Planetary Astronomy

672 Seminar: Planetary Studies

673 Seminar: Current Problems in Planetary Fluid Dynamics

675 Solar System Magnetohydrodynamics

680 Seminar: Cosmic Rays and High Energy Astrophysics (Physics 680)

699 Seminar: Current Problems in Theoretical Astrophysics

Biological Sciences

R. D. O'Brien, director; R. S. Marshall, assistant director for academic affairs; K. Adler, M. Alexander, J. Anderson, K. Arms, H. Banks, J. Barlow, D. Bates, A. Bensadoun, C. Berg, A. Blackler, W. Brown, P. Bruns, P. Brussard, T. Cade, J. Calvo, J. Camhi, R. Capranica, L. Carmichael, B. Chabot, R. Clausen, R. Clayton, L. Cole, C. Comar, L. Daniel, P. Davies, E. Delwiche, W. Dilger, S. Edelstein, T. Eisner, M. Edle-

frawi, S. Emlen, H. Everett, P. Feeny, J. Fessenden-Raden, G. Fink, R. Foote, E. Gasteiger, J. Gaylor, A. Gibson, Q. Gibson, P. Gilbert, J. Gillespie, R. Grossfeld, R. Hallberg, B. Halpern, G. Hammes, W. Hansel, L. Heppel, G. Hess, P. Hinkle, W. M. Howell, H. Howland, R. Hoy, J. Hudson, A. Jagendorf, W. Keeton, E. Keller, K. Kennedy, J. Kingsbury, G. Knaysi, R. Korf, E. Lenneberg, S. Leonard, S. Levin, G. Likens, R. MacDonald, R. MacIntyre, P. Marks, R. McCarty, D. McCormick, W. McFarland, K. Moffat, H. Moore, R. Morison, H. Naylor, A. Neal, W. Nelson, J. Novak, D. Paolillo, M. Parthasarathy, D. Pimentel, T. Podleski, H. Pough, E. Racker, E. Raney, M. Richmond, R. Root, M. Salpeter, G. Schatz, G. Schmidt, H. Seeley, R. Spanswick, A. Srb, F. Steward, H. Stinson, E. Stone, D. Tapper, R. Thomas, J. F. Thompson, C. Uhl, L. Uhler, P. VanDemark, A. vanTienhoven, W. Visek, B. Wallace, J. Wells, J. Whitlock, R. Whittaker, H. Williams, D. Wilson, W. Wimsatt, L. Wright, R. Wu, S. Zahler, D. Zilversmit

Students will be provisionally accepted in the biological sciences specialization as established by the Division of Biological Sciences during their freshman or sophomore years: application should be made to the Division of Biological Sciences Office. Prior to the senior year students must have written approval from the Division of Biological Sciences of their admission to the major. Final admission to the specialization will require completion of:

- (1) a year of biology (Biological Sciences 101-102 and 103-104 or 105-106; advanced placement may be allowed at the student's choice, on receipt of a score of 5 in the Advanced Placement Test of the College Entrance Examination Board or a score of 4 and completion of Biological Sciences 107).
- (2) a year of general chemistry (preferably Chemistry 207-208 or 215-216);
- (3) a year of college mathematics including at least one semester of calculus (Mathematics 105-106, or 111-112).

Whenever possible, students should include the above three subjects in their freshman schedule and complete organic chemistry and genetics in the sophomore year. A student is not encouraged to undertake a specialization in biological sciences unless performance in the above courses gives evidence of capacity to do superior work at a more advanced level. In addition to the introductory courses in chemistry, biological sciences, and mathematics, each specializing student must complete the following.

- (1) The divisional organic chemistry requirement can be filled with any one of the following models:
253-251, 253-251-252, 253-300-301, 357-358-300-301
357-358-251, 357-358-301 (only after completion of Chemistry 215-216);
- (2) a year of physics (Physics 101-102 or 207-208);
- (3) Biological Sciences 281 (genetics);
- (4) Biological Sciences 431 or 432 (biochemistry);
- (5) the breadth requirement outlined below;

(6) one of the concentration areas outlined below; and

(7) a minimum of six hours of college credit in a modern foreign language. Qualification in a foreign language, as defined by the College of Arts and Sciences, meets the Division's language requirement.

Students anticipating a concentration in biochemistry should contact an adviser in biochemistry as soon as possible.

The breadth requirement is designed to ensure that each major student becomes familiar with a minimum number of different aspects of modern biology. In fulfillment of this requirement, each student must pass one of the listed courses in two of the following eight categories:

- (1) *Neurobiology and Behavior*: 321, 421; *Psychology* 201, 323
- (2) *Developmental Biology* 347, 386
- (3) *Ecology and Evolution*: 261, 301, 361, 476
- (4) *Microbiology*: 290A
- (5) *Morphology*: 313, 316, 345, 373, plant pathology 309
- (6) *Physical Science and Mathematics*: Chemistry 389 or 288, Geology 101, Mathematics 213 or 221, Physics 360, Statistics 407, 408, or 510, Computer Science 201, 202, 311
- (7) *Physiology*: 242, 340, 410, 414
Vet. Med. 346, 347
- (8) *Taxon-oriented courses*: 344, 371, 470, 471, 472, 474, Entomology 212

The concentration requirement is designed to help students achieve depth in some area of biology of their own choosing. It permits maximum flexibility, while ensuring that the selection of advanced courses will form a coherent and meaningful unit. The student should seek the advice of his or her adviser in selecting the course to be taken in fulfillment of both the breadth and concentration requirements. No more than four credit hours of research courses can be used for completion of the requirements in the area of concentration. The possible concentration areas are:

- (1) *Animal Physiology and Anatomy*: Biological Sciences 373 and one course each from list A and list B with the provision that one laboratory course has to be included in the choice from list B (e.g., a student could take Veterinary Medicine 346 without taking 346 laboratory but then would need to take Biological Sciences 414 or Biological Sciences 410 and 411).
- List A: Histology, the Biology of Tissues (Biological Sciences 313), four hours; Animal Embryology (Biological Sciences 384), four hours; Vertebrate Anatomy (Veterinary Anatomy 900), three hours; Invertebrate Zoology (Biological Sciences 316), four hours.
- List B: General Physiology (Biological Sciences 410), three hours; General Physiology Laboratory (Biological Sciences 411), two hours; Mammalian Physiology (Biological Sciences 414), six hours; Introductory

Physiology (Veterinary Medicine 346), three hours; Introductory Physiology Laboratory (Veterinary Medicine), one hour; Fundamentals of Endocrinology (Aminal Science 425), four hours.

(2) Neurobiology and Behavior: Biological Sciences 321 and twelve hours, including a second course in neurobiology to be selected in consultation with the adviser.

(3) Biochemistry: The student must fulfill the organic chemistry requirement by taking Chemistry 301, 302, 357, 358. In addition the student must take Chemistry 389-390 or 287-288 and Biological Sciences 530 or 430.

(4) Botany: Biological Sciences 242 (or 340), 345, 347, and 371.

(5) Ecology and Systematics: at least thirteen hours including courses 361 and 476; three or more credit hours from 400 or higher level courses in Ecology, Systematics, and Evolution and a physiology course. At least four laboratory courses must be included, but students may count two courses taken for breadth requirements as laboratory requirement. Students planning graduate study are strongly urged to take a course in statistics (ILR 210 or 311).

(6) Genetics and Development: nine hours usually selected from the following courses: 280, 347, 386, 387, 440, 441, 476, 480, 484, 485, 486, 488; Statistics 510, Plant Breeding 505.

(7) Students who, for good reason, wish to undertake a course of studies not covered by these seven concentration areas may petition for permission to do so.

Students interested in teaching biology in secondary schools are urged to consult an adviser in the Department of Education during their freshman year. Courses appropriate to the student's program are described in the *Announcement of the Field of Education*.

Honors Program

The Honors Program offers a student an opportunity to do independent work under the supervision of a member of the faculty. This entails independent laboratory work on a project in addition to writing a thesis. Candidates for this program must have at least a 3.0 cumulative average, although the committee will entertain petitions for special cases. The student must also obtain a sponsor in a biology-oriented basic or applied science within the University. An honors candidate will ordinarily enroll for credit in a research course under the direction of the faculty member acting as the honors supervisor. No more than four credit hours of research courses can be used for completion of the requirements in the area of concentration. Recommendation to the faculty that a candidate graduate with honors will be the responsibility of the Honors Program Committee. Students interested should consult their adviser for further details, preferably during the first term of the junior

year.

Students interested in the Honors Program must register with the office of the Division no later than the first term of the senior year. The final report of the student's work must be in the hands of the Committee not later than the first day of the study period to the week of the final examinations.

Many decisions pertaining to curriculum, to Division-wide requirements, and to depth and breadth areas, are made by the Curriculum Committee of the Division. The Committee has faculty and elected student members, and welcomes advice and suggestions from all interested parties. The Division office will supply information on Committee affairs.

Distribution Requirement

The distribution in biological sciences is satisfied by Biological Sciences 101, 103 and 102, 104; or 109-110; or 105-106; or advanced placement with a score of 4 plus Biological Sciences 107; or advanced placement with a score of 5.

General Courses

101-102 Biological Sciences Throughout the year. Credit two hours a term. Must be taken concurrently with 103 and 104 (laboratory). Biological Sciences 101 is prerequisite to 102, unless special permission is obtained from the instructor, 101-102 cannot be taken for credit after 105-106, or 107, or 109-110. Lectures, M W hours to be announced. Two preliminary examinations will be offered each term at 7:30 p.m. K. Adler.

Designed both for students who intend to specialize in biological sciences and for those specializing in other subjects, such as the social sciences or humanities, who want to obtain a thorough knowledge of biology as part of their general education. Plant and animal materials are considered together rather than in separate units. The fall semester covers scientific methodology, cellular biology, metabolism, tissue and organ function, and reproduction and development. The spring semester covers genetics, evolution, behavior, and ecology. Each topic is considered in the light of modern evolutionary theory.

103-104 Biological Sciences Laboratory

Throughout the year. Credit two hours a term. Must be taken concurrently with 101 and 102. One three-hour laboratory each week and a weekly lecture section for discussions, special lectures, etc. Lecture, F hours to be announced. Laboratory, M T W or Th 1:25-4:25, or T Th 8-11, or F 10:10-1, or M W 7:30-10:20 p.m. J. Glase and assistants.

Laboratory exercises are planned to correspond to the lecture schedule. Exercises are both observational and experimental in approach and cover plant and animal materials. Students obtain experience in designing experiments, learning diverse methodologies, synthesizing information, using statistical analysis, and in writing reports.

105-106 Introductory Biology Throughout the year. Credit four hours a term (or less by arrangement with the instructor). Lectures T 1:25. K. Arms and P. Camp.

Designed for students who intend to specialize in the biological sciences and for nonmajors. Also open to transfer students who may need fewer than six credit hours in introductory biology. Course material is divided into core units which must be completed by all students and optional units of which students can choose to complete a variable number depending upon the grade they are working for. The course offers an introduction to cellular structure, function, and chemistry; plant and animal physiology; and anatomy, heredity, evolution, ecology, and behavior. In addition, some areas of biology of particular interest for their social and cultural implications are identified and some are studied in detail in particular units of course work.

An autotutorial format is used and students are expected to schedule their hours in the learning center at their convenience. No class-wide examinations will be held. Laboratory work is an integral part of the course.

107 Biological Discovery Fall term. Two lectures and two laboratories weekly. T Th 9:05. Open to freshmen who achieve a grade of 4 or 5 on either the biology advanced placement exam of the College Entrance Examination Board or an advanced placement exam administered during freshman Orientation Week. Also open to transfer students with one semester of college biology who attain a grade of 4 or 5 on the freshman Orientation Week advanced placement exam. Limited to sixty students. Not open to students who have credit for more than one semester of introductory biology or to students who have credit for 101-102, 105-106, or 109-110. Passing 107 comprises fulfillment of introductory biology requirements in terms of (1) electing more advanced biology courses, and (2) fulfilling the biology distribution requirement for nonmajors. Students with advanced placement grades of 5 receive six credits for previous work in biology and are permitted to exempt all introductory courses including 107. If they take and pass 107, they receive an additional four credits. Students with advanced placement grades of 4 receive three credits for previous work in biology plus four credits for passing 107. J. M. Camhi.

Designed to instruct students in the ways that scientists ask questions about living things, and design and carry out observations or experiments to answer these questions. In the laboratory, students work in small groups on extended research problems which they help design. Instruction is highly individualized and aims at improving each student's ability to ask meaningful questions, organize and quantify observations, analyze research data, and relate results to previously reported biological findings. Specific research techniques will be introduced when need arises.

Lectures, which expand the scope of the laboratory experience, treat the conceptual and technical un-

derpinnings of biological science, illustrating these with examples from diverse animal and plant disciplines. Biological content stresses properties and processes common to a wide range of living organisms, rather than focusing narrowly upon specific topics. It is hoped that this course will be useful to both potential scientists and to others wishing to attain a deeper insight into the nature of biological science.

108 Interactive Computing for Students of Biological Sciences Spring term. Credit one hour. Lecture every other week. T 1:25. H. C. Howland.

An introduction to computing using the interactive language FOCAL with a discussion of other algebraic computing languages such as BASIC and elementary FORTRAN. Students will be issued tickets for five hours of computing time at the Division of Biological Sciences interactive computing facility. Applications to problems in the biological sciences will be emphasized. Not open to students with prior courses in computing.

109-110 Biology for Nonmajors Throughout the year. Credit three hours a term. Limited to 680 students. This course can be used to fulfill the distribution requirement in the Colleges of Arts and Sciences, Human Ecology, and Agriculture and Life Sciences, but may *not* be used as an introductory course for the major in biological science. *Note that this course may not always satisfy as a prerequisite to second- and third-level courses in biology.* Attendance in 109 is requisite for registration in 110, except by special consent. May not be taken after 101-102 or 105-106. Lectures, M W F 9:05 or 11:15. Laboratories M T W Th or F 2-4:15. Each student must attend a laboratory on alternate weeks. Two preliminary examinations will be given each term at 7:30 in the evening; the dates are October 8 and November 14, 1974, and February 25 and April 1, 1975. W. T. Keeton and M. L. Kreithen.

Students who do not plan to major in biology have the opportunity of taking this broad introductory course in modern biology without the necessity of the more detailed study normally required. Nevertheless, it is not a course in social biology but addresses itself to biological principles with academic rigor. The content is designed to appeal to anyone who seeks a comprehensive knowledge of biology as part of his or her general education. Laboratory sections enable small groups of students to meet with the course staff, and will be used for problem solving experiments, demonstrations, and discussion.

202 Biology and Society Spring term. Credit two hours. May not be repeated. Evening lectures, M 8 p.m. Discussion periods (one hour) to be arranged. Only grades of S and U will be given. Staff and invited speakers. A series of public lectures dealing with a variety of topics concerning man as an individual, man as a member of society, and man as a member of the community of life on earth. The lectures are open to students and non-student members of the

Cornell community as well as to other Ithaca-area residents.

Students enrolling for credit are requested to attend and participate in one of the weekly discussion groups. The purpose of the discussion period is to permit students to explore lecture material or related topics in depth. Because the number of students who can be accommodated in Biology 202 is dependent upon an unpredictable and variable number of volunteer faculty members from the many colleges and schools on the Cornell campus, preregistration in this course is not permitted. Preference given to upperclassmen. No preregistration.

203 Special Topics in Social Biology Fall term. Credit three hours. Permission of the instructor is required. Hours to be arranged. S-U grades optional.

Normally, credit for course 203 will count for neither breadth nor concentration requirement in the biological sciences curriculum even if the section is under the direction of a biologist, although this restriction may be waived in isolated cases. This course may not be offered every fall; information can be obtained by calling the Division of Biological Sciences (6-5233), or the Science, Technology, and Society Program (6-3964).

204 Special Topics in Social Biology Spring term. Credit three hours. Permission of the instructor is required. Hours to be arranged. S-U grades optional. In other respects this course is identical to course 203.

301 Laboratory Methods in Biology Either term. Credit three hours. Limited to juniors, seniors, and graduate students; twenty students per section. Prerequisite: 101-102 or equivalent. Scheduled period, T or F 10:10-12:05, consists of lecture and demonstration of work for the following week. Additional periods covered by leaving laboratory open at all times. The equivalent of at least one laboratory period per week required and sometimes several depending on the nature of the work. No formal examinations. Grade is based on required work, turned in at the end of the semester. L. D. Uhler.

For students who intend to teach or follow some phase of biology as a profession. Subjects covered: collection, preservation, and storage of materials; the preparation of bird and mammal study skins; injection of circulatory systems with latex; clearing and staining of small vertebrates; and the preparation and staining of squashes, smears, whole mounts, and sections.

[401 Teaching Biology] Spring term. Credit four hours. Enrollment limited. Prerequisite: permission to register. Hours to be arranged. S-U grades optional. Not offered in 1974-75].

403 Laboratory Design Fall term. Credit three hours. Enrollment limited. Prerequisite: permission to register. Hours to be arranged.

Designed to enable qualified students to obtain laboratory teaching experience by actual involvement in

the design and teaching of biology laboratories. To determine the prerequisites for enrollment, students wishing to take this course should contact the professor in charge of the laboratory.

405 Optics in Biology Fall term. Credit two hours. Enrollment limited to twenty. Prerequisite: Chemistry 104 or 208, Mathematics 108 or 111, and Physics 102 or 208, or consent of the instructor. M 1:25-3:20. R. K. Clayton.

Lectures, problems, demonstrations, and laboratory experience in applications of optics to biology. Topics will include geometrical optics as applied to illumination systems, methods for studying biological effects of light, and analytical uses of optical absorption and fluorescence.

503 Electron Microscopy for Biologists Fall term. Credit three hours. Open to graduate students, with preference given to students who have thesis problems requiring electron microscopy. Permission of the instructor required. Preregistration recommended. Enrollment limited to eight. Lecture, T 11:15. Laboratory, T Th 1:25-4:25 or W F 8-11. S-U grades optional. M. V. Parthasarathy.

Principles of electron microscopy, histological techniques for electron microscopy such as ultrathin sectioning, negative staining and metal shadowing, and interpretation of results. A brief introduction to scanning electron microscope is also included.

504 Advanced Electron Microscopy for Biologists Spring term. Credit three hours. Prerequisite: 503 and consent of instructor. Enrollment limited to eight. Lecture, T 11:15. Laboratory, T Th 1:25-4:25 or W F 8-11. S-U grades optional. M. V. Parthasarathy.

Designed primarily for graduate students who have a major interest in ultrastructure. Selected topics in cell ultrastructure and interpretation, and introduction to special techniques such as freeze-etching, enzyme digestion techniques, visualization of DNA strands, and autoradiography are included. The student will also be required to do a project involving all or some of the specialized techniques.

Animal Physiology and Anatomy

313 Histology: The Biology of the Tissues Fall term. Credit four hours. Prerequisite: a two semester introductory biology sequence; a background in vertebrate anatomy and organic chemistry or biochemistry desirable. Lectures, T Th 11:15. Laboratory, T Th 2-4:25. W. A. Wimsatt.

Provides the student with a basis for understanding the microscopic, fine structural organization of vertebrates, and the methods of analytic morphology at the cell and tissue levels. The dynamic interrelations of structure, composition, and function in cells and tissues are stressed.

Basic Immunology (Veterinary Medicine 315)

Fall term. Credit two hours. Prerequisites: basic microbiology or special permission of the instructor. T Th 9:05. A. J. Winter.

Course material covers at an elementary level the spectrum of facts and concepts in current immunology with special emphasis on the biological function of immune response in protective immunity.

316 Invertebrate Zoology Either term. Credit four hours. Prerequisite: at least one year of biological science or permission of instructor. Two lectures and two laboratories per week. Lectures, W F 11:15. Laboratory, W F 2-4:25. J. M. Anderson and assistant.

Lectures on selected topics in the development, structure, function, and interrelations of invertebrate animals, with particular attention to phylogenetic aspects. Intensive laboratory work on representative invertebrates, utilizing living or fresh specimens wherever possible. Each student will be expected to do a significant amount of independent work and a term paper may be required.

Introductory Parasitology and Symbiology (Veterinary Medicine 330) Spring term. Credit three hours. Prerequisite: one year of biology. Lectures T Th 11:15. Laboratory T 2:00-4:25. J. H. Whitlock and J. R. Georgi.

A study of unrelated species living together in intimate physiological association. Parasitoses which result in disease in the host are presented as important and special cases of the symbiotic spectrum. Emphasis is placed on an integrative study of the causation of disease in human beings and cultivated and natural populations of plants and animals. The biological functions of disease and the impact of human activities on the disease structure of populations is examined. Laboratory exercises will involve a broad range of symbiotes and pathogens from viruses to nemas and arthropods. (W. F. Mai, J. P. Kramer, and J. H. Gillespie will collaborate in certain aspects of the course.)

Introduction to Animal Physiology (Veterinary Medicine 346)

Spring term. Credit three hours. Prerequisites: one year of biology and zoology, college courses in chemistry, and basic college mathematics. M W F 11:15. D. N. Tapper and others.

The identity and functions of the organ systems of mammals, ruminant and nonruminant, with general comparisons to other forms. Particular emphasis is given to circulation, respiration, digestion, excretion, metabolism, and endocrine controls. The lectures, demonstrations, and exercises are intended to serve as a basis for subsequent work in the physiological sciences.

Introductory Physical Biology (Veterinary Medicine 347) Fall term. Credit three hours. Prerequisites: basic biology, chemistry, and calculus, or permission of the instructor. M W F 10:10. C. L. Comar and R. H. Wasserman.

A basic treatment of the application of physical principles to physiological problems. Coverage includes: mathematical approach to physiological problems; principles of tracers; kinetics; systems analysis and control theory; physiochemical principles; flow of energy in living systems; flow of mass in living systems; contractility.

410 General Animal Physiology: A Quantitative Approach, Lectures

Spring term. Credit three hours. Prerequisite: one year of biology and physics; courses in chemistry, organic chemistry, and biochemistry desirable. Lectures, M W F 10:10. S-U grades optional. H. C. Howland.

The principles of animal physiology are developed through consideration of the functioning of cells, tissues, and organs. Specific topics discussed include respiration, metabolism, circulation, excretion, body mechanics, muscle contraction, nerve action, sensory reception, and central nervous system function. A quantitative, systems-theoretical approach is emphasized.

411 General Animal Physiology Laboratory

Spring term. Credit two hours. Prerequisite: 410 or equivalent must be taken concurrently. Lecture, W 2. Laboratory, M T Th or F 1:25-4:25. H. C. Howland.

Students are introduced to basic techniques utilized in the study of the physiology of animal tissues. Experiments cover topics dealing with respiration, properties of muscle, circulation, activity of nerves, and osmotic phenomena.

412 Special Histology: The Biology of the Organs

Spring term. Credit four hours. Offered in alternate years. Enrollment limited to eighteen students. Prerequisite: 313 or consent of instructor. Lectures, W F 9:05. Laboratory, W F 2-4:25. W. A. Wimsatt.

A continuation of course 313. The microscopic and ultrastructural organization of the principal vertebrate organ systems are studied in relation to their development, functional interaction, and special physiological roles. Courses 313 and 412 together present the fundamental aspects of the microscopic and submicroscopic organization of the vertebrate. The organization of the course involves student participation in lecture-seminars, and the prosecution of independent project work supplementary to the regular work on the laboratory. The latter enables students to gain practical experience with histological and histochemical preparative techniques.

414 Mammalian Physiology

Spring term. Credit six hours. Students desiring registration should file written application form at 438 Morrison. Prerequisite: a year of biological sciences. Courses in biochemistry, histology, and gross anatomy desirable. Lectures, M W F 8. Discussion, S 10:10. Laboratory, M or W 1:25. W. J. Visek, A. Bensadoun, E. L. Gas-teiger, Jr., and W. Hansel.

A general course including circulation, respiration, digestion, metabolism, renal function, endocrinology, and the nervous system.

418 Seminar In Anatomy and Physiology Either term. Credit one hour. Limited to juniors and seniors. Hours to be arranged. Organizational meeting first Tuesday of each semester. Staff.

419 Research In Animal Physiology and Anatomy Either term. Credit and hours to be arranged. Undergraduates must attach to their preregistration material, written permission from the staff member who will supervise the work and assign the grades. Staff.

Practice in planning, conducting, and reporting independent laboratory and/or library research programs.

512 Comparative Physiology Spring term. Credit two hours. Students are encouraged to enroll in 513 concurrently. T Th 9:05. W. N. McFarland and F. H. Pough.

A comparison of the principal physiological functions of vertebrates and invertebrates, with emphasis on adaption to different environments. Offered in alternate years. Not offered in 1975-76.

513 Comparative Physiology Laboratory Spring term. Credit two hours. Limited to twelve students. Prerequisites: concurrent enrollment in 512 and consent of instructor. T Th 1:25-4:25. Includes small group projects. W. N. McFarland and F. H. Pough.

Introduction to comparative physiological techniques and their application to original research projects. Not offered in 1975-76.

Animal Embryology (Biological Sciences 386)

Comparative Physiology of Reproduction of Vertebrates (Poultry Science 425)

Developmental Anatomy and Histology (Veterinary Anatomy 507)

Elements of Physical Biology (Veterinary Medicine 920)

Fundamentals of Endocrinology (Animal Science 427)

General Photobiology (Biological Sciences 547)

Neuroanatomy (Veterinary Anatomy 505)

Optics In Biology (Biological Sciences 405)

Insect Morphology (Entomology 322)

Sensory Function (Biological Sciences 427)

Vertebrate Morphology (Veterinary Medicine 700)

Vision (Biological Sciences 425)

The Vertebrates (Biological Sciences 373)

Neurobiology and Behavior

321 Neurobiology and Behavior Fall term. Credit three hours. Limited to juniors, seniors, and graduate students. Prerequisite: one year of introductory biology for majors. Lectures M W F 8. T. Eisner, M. E. El-defrawi, and staff.

Evolution of behavior, cueing of behavior; social and nonsocial behavior, neuroanatomy, neurophysiology, neurochemistry, neural networks, memory.

322 Physiological Psychology Laboratory (also Psychology 322) Spring term. Credit three hours. Prerequisites: 321, Psychology 201, concurrent or prior registration in 323, and consent of instructor. Discussion, M 7:30-9 p.m. Laboratory, T 1:25-4:24. May be taken on an S-U basis with consent of instructor. B. P. Halpern.

Experiments will be done on physiological aspects of conditioning in vertebrates and invertebrates, memory, interactions between hormones and behavior, and effects of brain lesions on perceptual and alimentary behavior. A final original experiment will be planned and carried out.

323 Physiological Psychology (also Psychology 323) Spring term. Credit three hours. Prerequisites: one year of introductory biology for majors or equivalent and introductory chemistry; Psychology 201 or a 300-level course in psychology; Chemistry 103-104 or its equivalent. Lectures T Th 9:05. B. Halpern.

Selective examination of neural, endocrine, and biochemical functions related to emotion, memory, learning, perception, hunger, thirst, and sleep.

[324 Animal Social Behavior Spring term. Credit four hours. Prerequisite: 101-102 or 105-106. Not open to students who have already taken 523. Not offered in 1974-75.]

325 Cellular Organization of the Nervous System Spring term. Credit three hours. Prerequisites: one year of introductory biology for majors and 321; the latter may be waived by permission of the instructor. Lectures, T Th 11:15. M. M. Salpeter.

Special emphasis is on development, functional relationships, and ultrastructure.

326 Elementary Neurophysiology Fall term. Credit three hours. Prerequisite: 325 or permission of the instructor. Lectures, T Th 9:05. Discussion T 7 p.m. T. R. Podleski.

Lectures will examine the biophysical and biochemical properties of the excitable membranes of nerve cells and muscle. Topics to be studied include the origin of bioelectric potentials, excitability, synaptic transmission, neural circuits, the specificity of neural membranes, and possible mechanisms for plasticity.

328 Behavioral Maturation (also Psychology)

328) Fall term. Credit three hours. Prerequisites: one year of college biology and one physiological psychology course or its equivalent. Lectures M F 12:20. E. H. Lenneberg.

Emergence of behavior will be studied in the light of developmental biology, including behavior genetics, neuroembryology and morphogenesis, physical maturation of the brain, transformation and allometry as well as retarding influences from the environment.

420 Principles of Neurobiology Laboratory (also Psychology 420)

Spring term. Credit four hours. Prerequisite: Biological Sciences 326, or 427, or 428 (may be taken concurrently) or permission of instructors. M T W or Th 1:25-4:25. Enrollment limited to thirty-six students. B. Halpern, T. Podleski, D. Tapper, and staff.

Laboratory practice with neurobiological preparations and experiments, designed to teach the students the techniques, experimental designs, and research strategies used to study biophysical and biochemical properties of excitable membranes, sensory receptors, the central nervous system transformation of afferent activity, the characteristic composition and metabolism of neural tissue. The course will be divided into two segments: an initial segment (approximately six weeks) in which fundamental techniques will be learned and used in experiments by all students; a second segment (approximately eight weeks) in which students will learn and use more specialized techniques for experiments in either elementary neurophysiology of excitable membranes, or sensory function, or neurochemistry.

421 Comparative Vertebrate Ethology Fall term. Credit three hours. Prerequisite: 101-102 or 105-106, and 321, and permission of the instructor. Lectures, T Th 9:05. Laboratory, to be arranged. S-U grades optional. W. C. Dilger.

A survey of the methods and principles of vertebrate ethology for students specializing in this field or for those in other branches of zoology wishing to broaden their knowledge of animal behavior. Emphasis is placed on the causation, function, biological significance, and evolution of species typical behavior. The laboratories are designed to give first-hand knowledge of the material covered in lectures.

423 Animal Communication Fall term. Credit four hours. Enrollment limited to thirty-two students. Prerequisites: Biological Sciences 321 and Physics 101-102 or 207-208. Lectures, T Th 10:10. Laboratory, T or Th 1:25-4:25 and other meetings to be arranged. R. R. Capranica and R. Hoy.

The functional aspects of biological signals, their physical properties, and the physiological mechanisms underlying their generation and reception. Lectures will examine in detail selected biological communication problems from each of the known sensory modalities. Discussion will cover signal analysis, transmission properties, and the limitation of each type of communication. Laboratories will include behavioral observations under both field and

captive conditions, and individual experience with the techniques of signal recording and analysis.

424 Brain and Behavior Fall term. Credit three hours. Prerequisite: familiarity with theories of perception, memory, and physiological psychology, or permission of the instructor. Th 2:30-4:30. E. H. Lenneberg.

A theoretical introduction to human neurology. This survey of clinical symptoms and their etiology is designed to enable students to make use of disease for research purposes.

[425 Vision] Fall term. Credit two hours. Prerequisite: Chemistry 104 or 108, Mathematics 108 or 111, Physics 102 and 208, or consent of the instructor; concurrent or previous enrollment in Biological Sciences 405 recommended. Lectures T Th 10:10. R. K. Clayton. Not offered in 1974-75.]

426 Neuropharmacology Spring term. Credit three hours. Prerequisites: 431 and 321, or consent of instructor. Lectures M W F 8. M. E. Eldefrawi.

Deals with drugs that affect the nervous system, both central and peripheral. Emphasis will be on mechanisms of drug action whereby biochemical processes and neurophysiological and behavioral phenomena are bridged. Among the topics discussed are stimulants, anesthetics, hallucinogens, and neurotoxins. Topics covered will also include drug addiction, psychopharmacology, endocrine pharmacology, and the biochemical basis of the therapeutic uses of drugs in diseases of the nervous system.

427 Sensory Function Fall term. Credit three hours. Prerequisite: 321 or the equivalent. Lectures, M W F 11:15. Discussion period to be arranged. B. P. Halpern and D. N. Tapper.

Sensory receptors and the central nervous system transformation of afferent activity will be considered in relation to human and animal psychophysical data and to the adaptive significance of behavior. The receptors will be examined in terms of anatomy, biochemistry, biophysics of transduction, and the central nervous system control of peripheral input. Information and signal detection theories will be applied.

[428 Neurochemistry] Spring term. Credit three hours. Prerequisites: 431 and 326, 427 or 524, or their equivalent. Enrollment approximately 50-100 students. Lecture-discussion T Th 11:15-12:45. Not offered in 1974-75.]

429 Research In Neurobiology and Behavior Either term. Credit and hours to be arranged. Undergraduates must attach to their preregistration material written permission from the staff member who will supervise the work and assign the grade. S-U grades optional. Staff.

Practice in planning, conducting, and reporting independently.

523 Evolution of Social Systems Fall term. Credit four hours. Primarily for graduate students.

Will alternate with an undergraduate course on the same subject. Prerequisites: course work in animal behavior, ecology, evolutionary theory and permission of instructor. Lectures T Th 9:05. Discussion hours to be arranged. S-U grades optional. S. T. Em-len.

A combined lecture and discussion course dealing with the interrelationships of animal behavior and ecology, emphasizing adaptive strategies of social behavior. Topics include: behavioral adaptations to the environment; ecological significance of different spatial organizations (territoriality, coloniality, nomadism); evolution of cooperative and communal social behavior; ecological constraints on monogamous, polygamous, and promiscuous mating systems; optimization of foraging strategies; predator-prey interactions; role of social behavior in population limitation.

524 Behavioral Neurophysiology Spring term. Credit three hours. Prerequisite: 321 or equivalent. One two-hour small discussion group weekly, time to be arranged. One lecture weekly, T Th or S 9:05. Enrollment limited to twenty-five students. J. M. Camhi.

Small group discussions of selected readings on a variety of related subjects; possible topics include (1) neuronal control of orientation behavior, (2) neuronal control of rhythmic behavior, (3) development of behavior and the nervous system, (4) sensory integration and behavior, (5) synaptic integration and behavior. Lectures will be presented as needed to aid in understanding material covered in groups. Opportunity provided for some students to lecture to the class.

525 Behavioral Neurophysiological Laboratory Spring term. Credit two hours. Enrollment limited to fifteen students. Course 524 must be taken concurrently. Hours and place to be announced. J. M. Camhi.

Experiments in neurophysiology, often related to specific behavior patterns.

526 Functional Organization of the Mammalian Nervous System (Lecture) Fall term. Credit three hours. Offered in alternate years. Offered next, fall 1974. Prerequisite: two years of biological science. Courses in biochemistry, physics, and neural anatomy are desirable. Lectures, M W F 10:10. E. L. Gasteiger.

Cellular, sensory, central integrative and motor aspects of the nervous system will be considered with an emphasis on the electrophysiological approach.

527 Functional Organization of the Mammalian Nervous System, Laboratory Fall term. Credit three hours. Concurrent registration in 526 requisite. Laboratory, W 1:25. E. L. Gasteiger.

Studies will include electrical activity of cells, reflexes, decerebrate rigidity, acoustic microphonic response, subcortical stimulation, and evoked and spontaneous cortical activity.

528 Bioelectric Systems Spring term. Credit three hours; four hours with laboratory. Prerequisite: 423 or 427 or 524, or Physics 360, or Electrical Engineering IEE 312. Permission of instructor required for laboratory. Lectures, M W 9:05. Discussion and demonstrations, Th 2. R. R. Capranica and M. Kim.

The application of systems techniques to biological problems. Electrical activity of nerve cells; generation and propagation of nerve impulse; voltage clamp technique. Hodgkin-Huxley model; electrical excitability and transfer function of neuromuscular systems; synaptic transmission; models of nerve cells and control system analysis of oscillatory activity. Nerve nets: evoked activity; spontaneous activity; simulation and computer analysis. Functional neuroanatomy of brain; transfer characteristics of sensory receptors; sensory encoding and processing in the peripheral and central nervous systems; neural mechanisms for vision and hearing.

Projects for the optional laboratory sessions to be arranged. Possible topics include: measurement of EKG and EEG; digital computer simulation and systems analysis of electrophysiological data; design of electronic instrumentation for biological and medical experiments.

620 Seminar in Neurobiology and Behavior Either term. Credit one hour. Primarily for undergraduates. Hours to be arranged. Organizational meeting, first Monday of semester, 8 p.m. S-U grades optional. Caldwell 100. Staff.

[622 Seminar in Ecological Animal Behavior] Spring term. Credit two hours. Open to qualified graduate and undergraduate students who have taken courses in animal behavior and ecology, and who have secured permission of the instructor. Hours to be arranged. Enrollment limited to twelve students. Not offered in 1974-75.]

629 Advanced Topics in Neurobiology and Behavior Either term. A seminar course for graduate students and selected undergraduates. Topics, credit, and hours to be arranged. Staff and students.

Designed to provide several study groups each semester on specialized topics. A group may meet for whatever period is judged adequate to enable coverage of the selected topics. Ordinarily, topics will be selected and circulated during the preceding semester. Suggestions for topics should be submitted by faculty or students to the chairman of the Section of Neurobiology and Behavior.

Optics in Biology (Biological Sciences 405)

Biochemistry

130 Orientation Lectures in Biochemistry Spring term. Noncredit. For freshman and sophomore students. Lectures and demonstrations covering interesting areas of biochemistry. First three Saturdays of term 9:05-10:30. J. L. Gaylor and staff.

131 Introductory General Biochemistry Fall term. Credit six hours. A terminal course primarily for

nonscience undergraduates. Lectures, M T W Th 11:15. Recitation, Th 2-4:25. A. L. Neal.

Lectures, demonstrations, and recitations dealing with selected fundamental principles of general, organic and biochemistry with emphasis on biochemistry.

231 Introductory Biochemistry Fall term. Credit three hours. Prerequisite: Chemistry 104 or 208, or the equivalent. May not be taken for credit by students who have completed a more advanced course in this section. Lectures, T Th F 12:20. A. L. Neal.

A brief survey of organic chemistry as related to biological compounds and a discussion of selected biochemical topics and reactions associated with the metabolism of animals, plants, and microorganisms and a discussion of selected biochemical topics. Especially designed as a general course for four-year students in agriculture.

430 Basic Biochemical Methods Either term. Credit four hours a term or four hours for two terms or two hours a term. Prerequisites: 431 and permission of instructor. Laboratory, lecture-discussion, M W 12:20-4:25 or T 9:05-4:25 or Th 9:05-4:25 (four credits); T 12:20-4:25 or Th 12:20-4:25 (two credits). J. M. Fessenden-Raden, L. D. Wright, and R. R. Alexander. Students must preregister with instructor by April 4 for fall term and November 1 for spring term.

A modular course designed to meet the practical biochemical needs of students concentrating in other disciplines. Choice of modules emphasizing clinical biochemistry, nutritional biochemistry, plant biochemistry and analytical biochemistry. Students enrolled for four credits will go into more depth and will complete more modules than students enrolled for two credits.

431-432 Principles of Biochemistry During 1974-75, Biological Sciences 431-432 will be given in two formats: lectures (431) and individualized instruction (432). *Lectures will be given fall term only. Individualized instruction will be offered to a maximum of 150 students each term.* All students intending to take 431-432 in the fall should attend the first class meeting, M 10:10, September 2.

431 Principles of Biochemistry (Lectures) Fall term. Credit four hours. Prerequisite: Chemistry 253 or the equivalent. M W F S 10:10. R. E. McCarty and staff.

A basic course dealing with the chemistry of biological substances and their transformations in living organisms.

432 Principles of Biochemistry (Individualized Instruction) Either term. Credit four hours. Prerequisite: Chemistry 252-253 or the equivalent. Students must have one of the following free: M W F 8 or M W F 10:10. First meeting in fall, M 10:10, September 2. R. Wu, J. M. Griffiths, and staff. First meeting in spring, M 10:10, January 27, J. M. Calvo, J. M. Griffiths and staff.

The focal point for this course is a study center where students find materials, get help, participate in discussions, and take exams. The study center will be open mornings, afternoons, and some evenings. Students are required to master a minimum body of core material. The pace at which this material is assimilated will, to a large extent, be self-determined. Students who wish to go beyond core material will have available a wide range of electives including discussions or research papers, independent study of a variety of problems. *Scientific American* articles, and original research literature. There are no formal lectures. Grades above C will be determined primarily by the amount of elective work satisfactorily completed. Each group of twenty-five students will have contact with an instructor, a teaching assistant, and an undergraduate assistant.

435-436 Undergraduate Biochemistry Seminars 435 fall term only; 436 spring term only. Credit one hour each term. Juniors and seniors only. Enrollment limited. Prerequisite: Biological Sciences 431 or consent of instructor. First meeting of each term is on the first Tuesday at 4 p.m. Fall term, D. B. Silversmit; spring term, staff.

A group of selected papers from the literature will be critically evaluated during six or seven two-hour meetings. A term paper will probably be required. Fall term, lipids and biomembranes; spring term, to be announced.

437 Cell Biology Spring term. Credit three hours. Intended primarily for juniors and seniors. Some knowledge of biochemistry assumed. Lectures M W F 8-8:50. A. J. Gibson and R. E. MacDonald.

An introduction to the properties of cells singly and in communities. The concepts of cell growth, structure and differentiation in prokaryotic and eukaryotic communities will be examined and compared with emphasis on cellular dynamics and interactions.

438 Laboratory in Cell Biology Spring term. Credit three hours. Prerequisites: coregistration in 437 and permission of instructor. Enrollment limited. M W 1:25-4:25. Discussion arranged. A. J. Gibson and R. E. MacDonald.

An introduction to techniques of handling cells in the laboratory. Cell material will vary to give the students the widest practical experience in the problems inherent in different systems.

439 Research in Biochemistry Either term. Credit hours to be arranged. For undergraduate students concentrating in biochemistry. Prerequisite: adequate ability and training for the work proposed. Undergraduates must attach to their preregistration material, written permission from the staff member who will supervise the work and assign the grade. J. L. Gaylor and staff.

Special work in any branch of biochemistry on problems under investigation by the staff of the section.

530 Intermediate Biochemical Methods Spring term. Credit four hours. Prerequisites: Chemistry 358 and 431 or concurrent registration in 532. Laboratory T or Th 9:05-4:25. Discussion period to be arranged. D. B. Wilson and staff.

Intended for undergraduates majoring in biochemistry and for graduate students with a minor in biochemistry. Preregistration must be made with an instructor by November 1.

Selected experiments on carbohydrates, proteins, amino acids, and metabolism (cellular particulates, kinetics, general enzymology) will be given to illustrate basic biochemical principles. The course will emphasize the quantitative aspects rather than qualitative identifications.

531-532 Intermediate Biochemistry (Lectures)

531 fall term only; 532 spring term only. Credit four hours a term. Prerequisites: Chemistry 357-358 and 431 or consent of instructor. Calculus and physical chemistry highly desirable. Lectures M T W Th F 9:05. Examinations, optional background or advanced lectures, and discussion sections may be scheduled on Th evenings. Fall term, J. K. Moffat; spring term, P. C. Hinkle.

The major areas of biochemistry and molecular biology will be covered in detail. Fall term: proteins and the nature of enzymatic catalysis; biosynthesis of informational macromolecules. Spring term: carbohydrate, nitrogen, and lipid metabolism; bioenergetics.

[534 Biochemistry of the Vitamins and Coenzymes] Spring term. Credit two hours. Offered in alternate years. Prerequisites: Chemistry 253 and Biological Sciences 431 or their equivalents. Lecture, T Th 10:10. D. B. McCormick. Not offered in 1974-75.]

535 Advanced Biochemical Methods I Fall term. Credit six hours. Limited to graduate students majoring in biochemistry. Laboratory T Th 10:10-4:35. Discussions to be arranged. E. B. Keller and Staff.

Each student will carry out a research project during which he will learn the basic techniques of biochemical research.

536 Advanced Biochemical Methods II Spring term. Credit six hours. Limited to graduate students majoring in biochemistry. S-U grades only. Staff.

Students will do research in the laboratories of three different professors chosen by the student.

537 Basic and Applied Science Coordination Course in Biochemistry Fall term. Credit one hour. Prerequisite: Biological Sciences 431 or equivalent. M 7:30-9 p.m. E. Racker.

Consists of a series of lectures and seminars of problems of basic and applied biochemistry and its coordination. Enrollment is limited to graduate students in the biological sciences.

631-632 Research Seminar in Biochemistry 631 fall term only; 632 spring term only. Credit one hour

each term. M 7:30-9 p.m. S-U grades only. E. Racker.

Required of all graduate students (first-year students excepted) majoring in biochemistry. The course may be repeated for credit.

633-638 Advanced Biochemistry Throughout the year. Lectures and seminars on specialized topics, three topics per term. Credit one hour per topic. Prerequisite: 532 or consent of instructor. May be repeated for credit.

The following fields will be covered. Enzyme structure and mechanism of action (fall, 1974); aspects of protein and nucleic acid synthesis (spring, 1975); structure, function, and synthesis of biological membranes (fall, 1975); structure and function in metabolic systems (spring, 1976).

633 Topic to be Announced Fall term 1974. First four and one-half weeks of term. T Th 9:05. Staff.

634 Nucleic Acids Spring term 1975. First four and one-half weeks of term. T Th 9:05. L. A. Heppel.

635 Analytical Ultracentrifugation Fall term 1974. Middle four and one-half weeks of term. T Th 9:05. R. H. Crepeau.

636 Regulation of Intermediary Metabolism Spring term 1975. Middle four and one-half weeks of term. T Th 9:05. W. J. Arion.

637 Problems in Sequencing Nucleic Acids Fall term 1974. Last four and one-half weeks of term. T Th 9:05. R. Wu.

638 Regulatory Mechanisms in Protein Synthesis Spring term 1975. Last four and one-half weeks of term. T Th 9:05. D. B. Wilson.

639 Biochemistry Seminar Either term. Noncredit. F 4:25. Staff.

Includes lectures on current research in biochemistry presented by distinguished visitors and staff.

See also, for optional credit in biochemistry:

Plant Physiology: Aspects of Metabolism, Biological Science 548

Vertebrate Biochemistry, Veterinary Medicine 512.

Botany

145 Plant Biology Fall term. Credit three hours. Limited to 96 students. Prerequisite: Biological Sciences 101-102 or equivalent. Lectures, T Th 9:05. Laboratory, M T W Th or F 1:25-4:25 or W 7:30-10:30 p.m. Maximum 16 students in each laboratory. H. P. Banks and assistants.

Introductory botany for those who plan to specialize in some aspect of, or to make some utilization of the plant sciences. Emphasizes structure, function, reproduction and classification of angiosperms, and the history of life on earth. Emphasis in laboratory is placed on the development of skills in handling plant

materials, including identification and several field trips.

242 Plant Physiology Spring term. Credit five hours. Primarily for undergraduates in the agricultural sciences. Prerequisites: one year of introductory biology for majors and introductory chemistry. Lectures, T Th S 10:10. Conference, M T W or Th 12:20-1:10. Laboratory, M T W or Th 1:25-4:25. Conference and laboratory must be on same day. The laboratory is the same as for course 340. P. J. Davies and R. M. Spanswick.

Plant physiology as applied to plants growing in communities. Examples will deal with crop plants or higher plants where possible, though not exclusively. Topics will include cell structure and function; soil-plant-water relations; water uptake, transport and transpiration; irrigation of crops; sugar transport; mineral nutrition of crops; respiration and photosynthesis; light relations in crops; growth and development-hormones, flowering, fruiting, dormancy, and abscission; chemical control of plant growth.

340 Plant Physiology Spring term. Credit three hours. Prerequisites: one year of introductory biology for majors and organic chemistry. Must be accompanied by 342 except by permission of the instructor. Lectures, T Th S 10:10. A. T. Jagendorf.

The behavior, growth, transport processes and environmental response of plants. Topics will include membrane properties, solute and water transport, function of osmotic forces; mineral and organic nutrition; stress resistance; growth and hormonal action; metabolism including photosynthesis and respiration; responses to gravity, light, photoperiod, and temperature.

342 Plant Physiology Laboratory Spring term. Credit two hours. Must be accompanied by 340. Conference M T W or Th 12:20-1:10. Laboratory, M T W or Th 1:25-4:25. Conference and laboratory must be on the same day. A. T. Jagendorf and R. M. Spanswick.

344 Phycology Spring term. Credit four hours. Lectures, M W F 10:10. Laboratory, M or F 2-4:25. J. M. Kingsbury.

An introduction to freshwater and marine algae including consideration of their ecology as members of the plankton and benthos and their importance to man. The laboratory, utilizing field material and cultures from an extensive living collection, is designed to illustrate lecture topics, provide familiarity with algae in the field, and introduce the student to techniques used in isolating, culturing, and studying algae in the laboratory.

345 Plant Anatomy Fall term. Credit four hours. Prerequisites: one year of introductory biology for majors and preregistration with instructor in charge. Lectures, T Th 8. Laboratory, T Th 10:10-12:35 or M W 2-4:25. D. J. Paolillo.

A descriptive course with equal emphasis on development and mature structure. Lecture, laboratory,

and reading are integrated in a study guide. The laboratory offers the opportunity to develop the practical skills required to make anatomical diagnoses and to write anatomical descriptions.

347 Cytology Fall term. Credit four hours. Prerequisite: one year of introductory biology for majors; 281 recommended. Lectures, M W 9:05. Laboratory, M W or T Th 10:10-12:35. C. H. Uhl.

A study primarily of the structure of cells and their components and the relation of these to function and to heredity. Special attention is given to chromosomes. Both plant and animal materials are used.

350 Plants and Man Spring term. Credit three hours. Lectures and discussions, M W F 8. S-U grades optional. D. M. Bates.

A consideration of the role of plants in the human environment and in the evolution of civilizations. Intended for students in all colleges. Emphasis is on ethnobotanical considerations and on historical to present day utilization of plants in nutrition, housing, clothing, medicine, religion, and the arts.

[440 Cyto genetics] Spring term. Credit three hours. Offered in alternate years. Prerequisite: courses 347 and 281 or the equivalent. Lectures, M W 9:05. Laboratory, M or W 10:10-12:35. C. H. Uhl. Alternates with Poultry Science 419. Not offered in 1974-75.]

[441 Plant Growth and Development] Fall term. Credit three hours. Offered in alternate years. Prerequisite: course 242 or 340 and 345, or equivalent; or permission of instructor. Lectures M W F 8. P. J. Davies and D. J. Paolillo. Not offered in 1974-75.]

444 Comparative and Developmental Morphology of the Embryophyta Spring term. Credit four hours. Offered in alternate years. Prerequisite: 345 and consent of the instructor. Lectures, T Th 8. Laboratory, T Th 2-4:25. D. J. Paolillo.

The life histories of bryophytes, vascular cryptogams, and seed plants are explored for their developmental attributes and for their bearing on concepts of evolution and group relationships. The course content is presented so that an awareness of the integration between morphology and other disciplines in biology can be developed.

[448 Plants and Time (Paleobotany)] Spring term. Credit three hours. Offered in alternate years. Prerequisites: plant anatomy and plant morphology recommended (may be concurrent), or permission of the instructor. Lectures, M W 1:25-2:20. Laboratory, M 2:30-4:25. H. P. Banks. Not offered in 1974-75.]

449 Research in Botany Either term. Credit and hours to be arranged. Undergraduates must attach to their preregistration material, written permission from the staff member who will supervise the work and assign the grade. Staff.

Students engaged in special problems or making special studies may register in this course. They must satisfy the instructor under whom the work is

taken that their preparation warrants their choice of problem.

543 Plant Physiology, Advanced Laboratory Techniques Fall term. Credit four hours. Primarily for graduate students doing work in plant physiology, but open to others if space permits. Prerequisite: organic chemistry, biochemistry, course 242 or 340, or the equivalent. Preregistration recommended. Laboratory, T or W 8-5. Recitation, M 4:30-5:30. Staff.

An introduction to some modern methods in experimental plant biology.

545 Photosynthesis Fall term. Credit two hours. Prerequisite: Chemistry 104 or 208, Math 108 or 111, and Physics 102 or 208, or consent of the instructor. Concurrent or previous enrollment in 405 recommended. Lectures, T Th 10:10. R. K. Clayton.

A detailed study of the process by which plants use light in order to grow, emphasizing physical and physico-chemical aspects of the problem.

[547 General Photobiology] Fall term. Credit two hours. Open to undergraduate students. Prerequisite: same as for 545. Concurrent or previous enrollment in 405 recommended. Lectures, T Th 10:10. R. K. Clayton. Not offered in 1974-75.]

548 Aspects of Plant Metabolism Spring term. Credit three hours. Offered in alternate years. Prerequisite: 242 or 340, and 431; Chemistry 353, or the equivalent. Lectures, M W F 9:05. A. T. Jagendorf, R. E. McCarty, J. F. Thompson, and staff.

Selected areas of plant biochemistry will be reviewed in the context of the plant life cycle and responses to the environment. Probable topics include: metabolism and storage function of lipids, carbohydrates, organic acids, proteins and pigments; nitrogen and sulfur assimilation; hormone metabolism; respiration, photosynthesis, development and replication of mitochondria and chloroplasts; cell wall composition and properties. Attention will be paid to operation of control mechanisms.

549 Transport of Solutes and Water in Plants Fall term. Credit three hours. Offered in alternate years. Prerequisite: 340 or equivalent. Lectures, M W F 10:10. R. M. Spanswick.

Transport of ions, water, and organic materials in plants. Mechanisms of ion transport. Relationships between ion transport and metabolism. Ion uptake and transport in higher plants. Phloem transport. Water relations of single cells and whole plants.

643 Plant Physiology Seminar Either term. Non-credit. Required of graduate students taking work in plant physiology. F 11:15. Staff.

Lectures on current research in plant physiology presented by visitors and staff.

645 Current Topics in Plant Physiology Fall term. Credit two hours per term. Course may be repeated for credit. Time to be arranged. Staff.

Seminar reports by graduate students, on current literature in experimental plant physiology or related areas.

647 Special Topics in Plant Taxonomy Either term. Credit one hour per term. Prerequisite: permission to register. Lecture and discussion. Hours to be arranged. D. M. Bates, W. J. Dress, J. W. Ingram, and H. E. Moore.

A series of four topics, one presented each term, designed to provide professional background in biosystematics, literature of taxonomic botany, nomenclature, and tropical families of phanerogams.

(1) Fall term, 1974. Nomenclature. An analysis of the International Code of Botanical Nomenclature and its application to various plant groups. Lectures, problems, discussion. W. J. Dress.

(2) Spring term, 1975. Biosystematics. A consideration of biosystematic approaches to taxonomy including chemical, numerical, cytological, and statistical methodologies as well as a review of classic studies. D. M. Bates.

(3) Fall term, 1975. Families of Tropical Phanerogams. The families of flowering plants encountered solely or chiefly in tropical regions will be considered in lectures, discussions, and demonstrations with the aim of providing basic points of recognition for and an understanding of diversity and relationships in these families for the student venturing into the tropics. H. E. Moore.

(4) Spring term, 1976. Literature of Taxonomic Botany. A survey of the basic reference works in taxonomy from the pre-Linnaean literature drawn on by Linnaeus to contemporary publications with comments on the peculiarities of the books (when appropriate) on publication dates, typographic devices, and intricacies of bibliographic citation. Lectures demonstrations, discussions, and problems. J. W. Ingram.

649 Seminar in Systematic Botany Fall term. Credit one hour. May be repeated for credit. F 1. Staff.

Lectures and discussion led by staff, visitors, and students on topics of current importance to systematic botany.

Evolution, Taxonomy, and Ecology of Vascular Plants (Biological Sciences 371, 464, 663)

Plant Ecology (Biological Sciences 463)

Advanced Mycology (Plant Pathology 579, College of Agriculture and Life Sciences)

Taxonomy of Fungi (Plant Pathology 599, College of Agriculture and Life Sciences)

Current Topics in Mycology (Plant Pathology 649, College of Agriculture and Life Sciences)

Introductory Mycology (Plant Pathology 309, College of Agriculture and Life Sciences)

Optics in Biology (Biological Sciences 405)

Ecology, Systematics, and Evolution

261 Introductory Ecology Either term. Credit three hours. Prerequisite: college biology or a score of 5 on the advanced placement examination. Lecture: Fall W 12:20-2:30, Spring T Th 10:10-11. Special projects or discussion by arrangement. D. Pimental and L. C. Cole.

Ecological principles studied and reinforced using current examples of environmental pollution problems and their solutions. Topics include: energy in ecological systems and the energy crisis; recycling in ecosystems and waste production and degradation; limiting factors and impact of pollutants on life: population dynamics and human numbers and world food supply; competition, predation, and parasitism and biological control; biotic communities and the natural resources; population dispersal and dispersion and social behavior; habitat systems and land and water use; succession and supply-demand economy within biotic communities and the economics of pollution control. The relationship of ecology to other sciences and need of multidisciplinary approaches to both biological and environmental problems will be emphasized.

273 The Vertebrates Fall term. Credit five hours. Laboratory enrollment limited to twenty each section. Prerequisite: 101-102 or equivalent. Lectures, T Th 10:10. Laboratory, M W 1:25-5; T Th 1:25-5; M 7-10 p.m., F 1:25-5; T Th 7-10 p.m. One preliminary examination will be given at 7:30 p.m. Midterm examination will be given in the evening. Time to be announced. W. M. Howell and W. N. McFarland.

An introduction to the evolution, classification, comparative anatomy, life history, and behavior of vertebrate animals. Laboratory dissection, experimentation, and demonstration are concerned with structure, classification, systematics, biology of species, and studies of selected aspects of vertebrate life.

361 General Ecology Either term. Credit three hours. For students with concentration in ecology or related subject. Not open to freshmen. Prerequisite: 101-102 or equivalent. Lectures, T Th 9:05. Discussion, W or Th 1:25, 2:30, or 3:35. P. P. Feeny and P. L. Marks.

Principles concerning the interactions between organisms and their environment. Influence of competition, social behavior, predation, and other factors of population size and dispersion. Role of energy flow and mineral cycling in determining the structure and productivity of ecosystems. Succession and classification of natural communities. Influence of climate and past events on the diversity and stability of communities in different regions of the world. Interspecific competition and the niche concept. Chemical interactions between organisms. Application of ecological principles to human problems. Modern evolutionary theory will be stressed throughout and attention given to conflicting ecological hypotheses.

364 Introduction to Marine Science Summer by special application. Credit four hours. Prerequisite: a full year of college biology or geology. A special

course offered at the Shoals Marine laboratory of Cornell University, Apeldoore Island, Isles of Shoals, off Portsmouth, New Hampshire. The faculty includes up to fifty lecturers from academic institutions, marine industry, governmental agencies, and fishermen. S-U grades only. J. M. Kingsbury and staff.

Living material and habitats are emphasized in introducing students to the major disciplines of marine biology and oceanography and in rounding out the student's knowledge of these topics as presented at inland locations. Shipboard demonstrations of oceanographic tools and techniques are conducted, and the North Atlantic fisheries are examined with the participation of commercial trawlers and fishermen from the Gloucester fleet and the National Marine Fisheries Service.

Presented cooperatively by Cornell University, the University of New Hampshire, and the State University of New York, and carries transcript credit at the participating universities. For more details see the *Announcement of the Summer Session*; for information and applications, consult the Office of Marine Biology, 202 Plant Science Building.

371 Taxonomy of Vascular Plants Fall term. Credit four hours. Prerequisite: 281 or permission of the instructor. Lectures and discussions, T Th 9:05. Laboratory, T Th 2-4:25. R. T. Clausen.

An introduction to the evolution and classification of vascular plants, with attention to principles, methods of identification, and literature. In the first part of the term, trips are held in laboratory periods.

461 Oceanography Fall term. Credit three hours. Prerequisite: 361, 261, or consent of the instructor. Lectures, T Th 10:10. Additional lectures, Th 12:20 alternating with laboratory, M T W or Th 2:35. J. P. Barlow.

Physical and chemical aspects of the marine environment and interactions with marine communities. Laboratories devoted to demonstrations of field and laboratory techniques, experiments with simple models, and interpretation and analysis of typical oceanographic data.

462 Limnology, Lectures Spring term. Credit three hours. Prerequisite: 361, 261, or permission of instructor. Lecture, M W F 11:15. G. E. Likens.

A study of the interaction of biological communities and their aquatic environment. Lectures deal with the physical, chemical, and biological dynamics of freshwater ecosystems.

463 Limnology, Laboratory Spring term. Credit two hours. Prerequisite: concurrent enrollment in 462. Laboratory, W Th or F 1:25-5:25. One all-day field trip. G. E. Likens.

Laboratories devoted to both field studies and experiments on model ecosystems.

464 Plant Ecology Fall term. Credit four hours. Prerequisite: two advanced-level courses in biology including 361, or consent of instructor. Lectures, M

W F 11:15. Field trips, F 12-5. P. L. Marks and R. H. Whittaker. Principles of plant-environment interactions in relation to the distribution, structure, and functioning of plant communities. These principles will be illustrated by analysis in the field of representative plant communities and their environments.

465 Plant Ecology, Laboratory Fall term. Credit one hour. Prerequisite: concurrent enrollment in Biological Sciences 464 or an equivalent background in plant ecology. Laboratory, F 12-5. Limited to twenty students. P. L. Marks and R. H. Whittaker.

Laboratory and field exercises in plant ecology. Field study of plant communities and techniques for the analysis of community data are emphasized.

466 Evolution and Ecology of Vascular Plants Spring term. Credit four hours. Prerequisite: 371 or permission of the instructor. Lectures and discussions, T Th 9:05. Laboratory, T Th 2-4:25. R. T. Clausen.

A study of the variation, evolution, and ecological distribution of vascular plants. Laboratory periods in the later part of the term are devoted to study of natural populations in the field.

467 Chemical Ecology Spring term. Credit two hours. Primarily for seniors and graduate students. Offered in alternate years. Not offered in 1975-76. Prerequisite: Chemistry 253 or 357-358, course 101-102 or permission of instructor. Lectures, M F 12:20. S-U grades optional. P. P. Feeny, M. Alexander, T. Eisner, J. Meinwald, W. L. Roelofs, and R. H. Whittaker.

Ecological and evolutionary significance of chemical interactions of organisms. Summary of key processes in regulation of natural populations. Survey of major classes of natural products with emphasis on appropriate analytical techniques. Chemical adaptations for reproduction, defense, habitat selection, dispersal, feeding efficiency and competition in animals, plants, and microorganisms. Choice of adaptive strategy in relation to energy flow. Practical applications of chemical ecology.

468 Species Distribution and Abundance Fall term. Credit three hours. Prerequisite: 361, introductory statistics strongly recommended. Lecture, T Th 1:25-2:20. Laboratory, T 2:30-4:30. P. F. Brussard.

An advanced course emphasizing the unifying principles of ecology, biogeography, and population biology. Topics include the distribution of organisms in time and space, biogeographic regions, continental and island patterns of distribution, ecology of dispersal and colonization, ecological and genetic considerations of population structure, and factors determining population size. Includes projects and exercises designed to give students firsthand contact with field techniques and data analysis.

[470 Ichthyology] Spring term. Credit three hours. Offered in alternate years. Prerequisite: 373, 469, and permission of instructor. Lectures, M W 9:05.

Laboratory, T Th or W F 1:25-4:25. W. M. Howell. Not offered in 1974-75.]

471 Mammalogy, Lectures Fall term. Credit three hours. Prerequisite: one year of introductory biology for majors. Lectures, T Th S 10:10. J. W. Hudson and M. E. Richmond.

472 Mammalogy, Laboratory Fall term. Credit two hours. Prerequisite: concurrent enrollment in 471. Laboratory, T Th or W F 1:25-4:25. J. W. Hudson and M. E. Richmond.

Laboratory and field work on ecology, behavior, physiology, and the taxonomy of recent mammals, with emphasis on the North American fauna.

473 Ornithology Spring term. Credit four hours. Prerequisites: 373 or equivalent work in vertebrate biology and permission of instructor. Lectures and laboratories, T Th 12:20-4:25. T. J. Cade.

Lectures cover various aspects of the biology of birds including anatomy, physiology, classification, evolution, migration and orientation, behavior, ecology, and distribution and are fully integrated with laboratory studies. Laboratory includes studies of external and internal morphology, pterylosis, molts and plumages, specimen identification of birds of New York, and families of birds of the world. Several demonstration periods emphasize hybridization, evolution, adaptive radiation, mimicry, and geographic variation. Occasional field trips and special projects are also included.

[474 Herpetology] Spring term. Credit five hours. Prerequisite: 373 or equivalent experience in vertebrate zoology. Lectures M W F 10:10. Laboratory, Section 1 M W 1:25-4:25. Laboratory, Section T Th 1:25-4:25. In addition, there are several required evening field trips and at least one Saturday field project. Some of the laboratory work requires measurements to be made at intervals during the day and evening. Each laboratory section limited to twelve students. F. H. Pough. Not offered in 1974-75.]

[475 Herpetology Lectures] Spring term. Credit three hours. The lecture portion of 474. Prerequisite: permission of instructor. F. H. Pough. Not offered in 1974-75.]

476 Organic Evolution Fall term. Credit four hours. Prerequisite: 281 and a working knowledge of elementary algebra and logarithms. Also desirable is a course with some taxonomic content in botany or zoology, or experience in making and maintaining a collection of some plant or animal group. Lectures, T Th 11:15. Lecture or discussion, Th 12:20 and optional discussion one evening session each week, to be arranged. Staff.

Lectures and class discussions on organic evolution, with primary emphasis on the mechanisms of animal speciation and adaptation. The course begins with a few lectures on taxonomic methodology.

479 Research in Ecology, Evolution, and Systematics Either term. Credit and hours to be arranged. Undergraduates must attach to their preregistration material written permission from the section chairman and faculty who will supervise the work and assign the grade.

Practice in planning, conducting, and reporting independent laboratory and/or library research programs.

492 Microbial Ecology Spring term. Credit two hours. Offered in alternate years. Prerequisite: elementary course in some facet of microbiology. M W 8. Bradfield 105. M Alexander.

An introduction to the basic principles of microbial ecology. Attention is given to behavior, activity, and interrelationships of bacteria, fungi, algae, and protozoa in natural ecosystems.

[561 Quantitative Ecology Fall term. Credit four hours. Prerequisites: one year of biology and permission of instructor. Organic chemistry and some college mathematics are desirable. Lectures, T Th S 11:15. Laboratory, W 1:25-4:25. L. C. Cole. Not offered in 1974-75.]

562 Ecology of Pest Management Spring term. Credit three hours. Registration by permission. Lectures T Th 11:15. Special problem required. D. Pimentel and staff.

The focus will be on the ecology of pest management for the development of safe, economical population control measures. The "systems approach" to the management of pests (insects, algae, weeds, animal and plant pathogens, birds, and mammals) will be emphasized.

565 Limnology Seminar Fall term. Credit one hour; may be repeated for credit. Primarily for graduate students. Prerequisite: consent of instructor required for undergraduates. Hours to be arranged. G. E. Likens.

A seminar course on advanced limnological topics.

566 Marine Ecology Spring term. Credit three hours. Enrollment limited. Prerequisites: Biological Sciences 361, 461. Lectures, M W 9:05. Additional lecture, F 9:05 alternating with laboratory. Laboratory hours to be arranged. J. P. Barlow.

Lectures will present a survey of current topics in biological oceanography, including biogeography, ecosystems, marine resources and environmental problems. Laboratory will consist of demonstration of common chemical and biological methods, with the last few weeks devoted to interpretation of typical oceanographic data.

571 Special Topics in Higher Vertebrates Fall term. Credit two hours. Enrollment limited. Prerequisites: advanced courses in vertebrate biology and permission of instructor. Hours to be arranged. T. J. Cade and J. W. Hudson.

Seminars in selected topics of vertebrate ecology, behavior, physiology, and systematics with an emphasis on review of current literature.

573 Special Topics in Lower Vertebrates Fall term. Credit two hours. Offered in alternate years. Prerequisite: consent of instructor. For advanced students in biological sciences. Hours and topics to be arranged. W. N. McFarland and F. H. Pough.

Seminars in selected topics in the biology of fishes, amphibians, and reptiles. Topics vary from year to year.

661 Seminar in Population and Community Ecology Fall term. Credit one hour; may be repeated for credit. Course restricted to graduate students. Prerequisite: permission of instructor. Lecture, T 4:30. P. F. Brussard, S. A. Levin, and R. B. Root.

663 Seminar in Evolution and Ecology of Vascular Plants Fall term. Credit one hour. Prerequisites: 464 and Statistics 510 and 511 or equivalent, or permission of instructor. Lecture and discussion, M 11:15. R. T. Clausen.

A consideration of primary problems concerned with the classification, evolution, and environmental relationships of vascular plants.

[665 Autecology Fall term. Credit three hours. Lectures M W 8-9:55. B. F. Chabot and staff. Offered in alternate years. Not offered in 1974-75.]

[666 Population Ecology Spring term. Credit three hours. Prerequisite: graduate standing with some background in calculus, statistics, ecology, and evolutionary theory plus consent of instructor. Lectures and discussions, M W 8-9:55. P. F. Brussard, L. C. Cole, and S. A. Levin. Offered in alternate years. Not offered in 1974-75.]

667 Community Ecology Fall term. Credit three hours. Offered in alternate years. Not offered in 1975-76. Prerequisite: 666 or permission of instructor. Lectures, T Th 10:10-12:05. J. P. Barlow and R. H. Whittaker.

The structure and dynamics of natural communities; patterning and sampling problems, species-diversity, gradient relations, succession, and classification. Comparative aspects of terrestrial, marine, and freshwater communities will be stressed.

668 Ecosystems Spring term. Credit three hours. Offered in alternate years. Not offered in 1975-76. Prerequisite: 667 or permission of instructor. Lectures, T Th 10:10-12:05. G. E. Likens and P. L. Marks.

Analysis of ecosystems in terms of energy flow, materials circulation, and model systems; biogeochemistry, pollution, and human ecology. Emphasis on the functional properties of ecosystems considered from simple systems to the biosphere as a whole.

669 Plant Ecology Seminar Either term. Credit one hour. Suggested for students majoring or minor-ing in plant ecology. Hours to be arranged. S-U grades only. B. F. Chabot and P. L. Marks.

A seminar course including review of current literature, student research, and selected topics of interest to participants.

Insect Biology (Entomology 212, College of Agriculture and Life Sciences)

Invertebrate Zoology (Biological Sciences 316)

Advanced Soil Microbiology (Agronomy 506, College of Agriculture and Life Sciences)

Soil Microbiology Lectures (Agronomy 306, College of Agriculture and Life Sciences)

Soil Microbiology Laboratory (Agronomy 307, College of Agriculture and Life Sciences)

Microbial Ecology (Biological Sciences 492)

Phycology (Biological Sciences 344)

Bionomics of Fresh-Water Invertebrates (Entomology 471, College of Agriculture and Life Sciences)

Introductory Insect Taxonomy (Entomology 331, College of Agriculture and Life Sciences)

Advanced Insect Taxonomy (Entomology 531, 532, 533, 534, College of Agriculture and Life Sciences)

Introductory Parasitology (Entomology 361, College of Agriculture and Life Sciences)

Advanced Parasitology (Entomology 551, College of Agriculture and Life Sciences)

Ecological Aspects of Animal Behavior (Biological Sciences 523)

Genetics, Development, and Physiology

280 Human Genetics Spring term. Credit three hours. Prerequisite: 101-102 or 109-110 or equivalent. Students who have taken 281 may register only with permission of the instructor. Lectures, M W 10:10. Discussion, Th one section 10:10 or two sections 11:15 or F four sections 10:10 or one section 11:15. Limit of twenty-five each section. A. M. Srb.

An introduction to biological heredity through consideration of the genetics of man. Advances in the science of genetics are having a profound effect on man's understanding of himself and on his potential for influencing his present and future well-being. The course is intended primarily to contribute to the student's general education in these matters and, although certain aspects of genetics will be considered with some rigor, the course is not designed to serve as a prerequisite to advanced courses in genetics.

281 Genetics, Lectures Either term. Credit five hours. Prerequisite: 101-102 or 105 or equivalent. Students who have taken 280 may register only with permission of the instructor. No freshman will be allowed in fall semester. Lectures, T Th 10-11:30. Preliminary examinations may be scheduled in the evening. Laboratory, M T W Th or F 2:30-4:25, T or Th 8-9:55, or S 10:10-12:05. (Laboratory sections may also be scheduled W or F 10:10-12:05 if enrollment exceeds 240 students.) P. Bruns (fall), G. R. Fink (spring), R. J. MacIntyre (laboratory), and assistants.

A general study of the fundamental principles of genetics in eucaryotes, procaryotes, and viruses. Discussions of gene transmission, gene action and interaction, gene linkage and recombination, gene structure, gene and chromosome mutation, genetic aspects of differentiation, genes in populations, breeding systems, extrachromosomal inheritance. In the laboratory, students perform experiments with microorganisms and conduct an independent study of inheritance in *Drosophila*. Students do not preregister for laboratory sections. Laboratory assignments will be made at the end of the first lecture period.

386 Animal Embryology Spring term. Credit four hours. Enrollment limited to eighty students. Prerequisite: 281. A background in vertebrate anatomy or histology desirable. Lectures, W F 9:05. Laboratory, W and F 10:10-12:35 or 2-4:25. Staff.

Introduction to general animal embryology with major emphasis directed to vertebrates. The lectures cover the physiological, genetical, and morphological bases of early development. The laboratories have a strong anatomical theme.

387 Molecular Aspects of Development Fall term. Credit three hours. Prerequisite: 281, 431, highly recommended. Lectures, M W F 9:05. R. L. Hallberg.

Analysis at the cellular and subcellular level of the regulation of the synthesis and activity of gene products in the development of eucaryotes. Selected systems will be discussed which demonstrate the differential regulation of nucleic acid and protein synthesis within individual cells as well as between different populations of cells within a developing organism. Sufficient emphasis will be placed on technological methodology in order that current research papers in molecular cell biology can be critically analyzed.

480 Population Genetics Spring term. Credit three hours. Offered in alternate years. Prerequisite: 281 or equivalent. Lectures, T Th 11:15. S-U grades optional. B. Wallace.

A study of factors which influence the genetic structure of Mendelian populations and which are involved in race formation and speciation. In contrast with 484, this course deals largely with the algebraic aspects of population genetics.

484 Molecular Evolution Spring term. Credit three hours. Offered in alternate years. Prerequisites:

281 and organic chemistry. Lectures, T Th 11:15.
R. J. MacIntyre.

An analysis of evolutionary changes in proteins and nucleic acids and gene-enzyme variability in natural populations. The role of natural selection in effecting these changes and maintaining genetic variation at the molecular level will be critically examined. Theories on the evolution of the genetic code and the construction of phylogenetic trees from biochemical data will be discussed.

485 Microbial Genetics, Lectures Fall term.
Credit two hours. Prerequisites: 281 and Microbiology 290A, or permission of the instructor. For upperclassmen and graduate students. Lecture, W 7:30-9:25 p.m. S. A. Zahler. S-U grades optional.

Genetics of bacteria and their viruses, with emphasis on the mechanisms of genetic phenomena.

486 Microbial Genetics, Laboratory Fall term.
Credit three hours. Prerequisites: 485 (may be taken concurrently) and permission of the instructor. Primarily for upperclassmen. Laboratory, T 1:25-4:25, and four other hours to be arranged. S. A. Zahler.

Problem solving in bacterial genetics.

488 Genetics of Lower Eucaryotes Spring term.
Credit three hours. Prerequisites: 281 and a course in organic chemistry. Lectures, M W 9:05. S-U grades optional. P. J. Bruns, G. R. Fink, and A. M. Srb.

Genetic aspects of the biology of a few eucaryotic microorganisms, primarily yeast, Neurospora, and ciliated protozoa, with emphasis on the use of these organisms as experimental tools. Major topics to be covered include gene action, control mechanisms, cytoplasmic genetic systems, recombination and conversion, morphogenetic systems and evolutionary aspects of physiological systems. Extensive appropriate reading in the original literature of genetics is a primary component of the course.

489 Research in Genetics and Development Either term. Credit and hours to be arranged. Undergraduates must attach to their preregistration material, written permission from the staff member who will supervise the work and assign the grade. Staff.

Practice in planning, conducting, and reporting independent laboratory and/or library research programs.

680 Current Topics in Genetics Throughout the year. Credit two hours a term. Open to graduate students, with preference given to majors in the Field of Genetics; undergraduates by permission only. No auditors. Enrollment limited to twenty students. Hours and place to be arranged. Staff.

A seminar course with critical presentation and discussion by students of original research papers in a particular area of current interest. Content of the

course and staff direction will vary from term to term, and will be announced a semester in advance.

Animal Cytogenetics (Poultry Science 419, College of Agriculture and Life Sciences)

Cytology (Biological Sciences 347)

Cytogenetics (Biological Sciences 440)

Organic Evolution (Biological Sciences 475)

Physiological Genetics of Crop Plants (Plant Breeding 505, College of Agriculture and Life Sciences)

Plant Growth and Development (Biological Sciences 441)

Statistical Methods I (Statistics 510, College of Agriculture and Life Sciences)

Chemistry

G. G. Hammes, chairman; A. C. Albrecht, S. H. Bauer, C. A. Brown, J. M. Burlitch, W. D. Cooke, V. du Vigneaud, E. L. Elson, R. C. Fay, M. E. Fisher, J. H. Freed, B. Ganem, M. J. Goldstein, R. Hoffmann, R. E. Hughes, F. A. Long, G. M. Loudon, F. W. McLafferty, J. Meinwald, W. T. Miller, G. H. Morrison, E. L. Muetterties, R. F. Porter, H. A. Scheraga, F. R. Scholer, A. G. Schultz, M. F. Semmelhack, M. J. Sienko, D. A. Usher, B. Widom, J. R. Wiesenfeld, C. F. Wilcox

Chemistry Major

A major in chemistry permits considerable flexibility in the detailed planning of a course program. The required courses can be completed in three years, leaving the senior year open for advanced and independent work in all areas of chemistry: physical, organic, inorganic, analytical, theoretical, bioorganic, biophysical. A major in chemistry can also provide the necessary basis for significant work in related areas such as molecular biology, chemical physics, geochemistry, chemical engineering, solid state physics, and medicine.

The courses are arranged as a progression with some courses (including mathematics and physics) prerequisite to those which are more advanced. During the first year the student should normally register for general chemistry (preferably but not necessarily Chemistry 215), mathematics, a Freshman Seminars course, a foreign language if necessary or, in some instances, physics. Although Chemistry 215-216 is preferred, students may begin their programs with Chemistry 207-208 or Chemistry 103-104-208. Chemistry 215-216 is a limited enrollment course for those students with excellent preparation; students who are uncertain as to their preparation should consult the instructor. In the second year the student

should complete calculus, take physics and organic chemistry, Quantitative Chemistry 300, if needed, and Experimental Chemistry 301 and complete a course in distribution (see p. 15). Physical Chemistry 389 and 390 and Experimental Chemistry 303 should be completed in the third year along with courses in distribution if necessary. Advanced work in chemistry and related subjects could be pursued in the fourth year and, to some extent, in the earlier years as well. The opportunity for independent research is also available. All students with questions about details of a major program are encouraged to consult with the chairman of the Department of Chemistry or the chairman's representative. Entering students exceptionally well prepared in chemistry may receive advanced placement credit for Chemistry 207-208 and proceed to a more advanced program.

Prerequisites for admission to a major in chemistry are (1) Chemistry 215-216 or 207-208, 300 or 103, 104, 208, 300; (2) Physics 207; and (3) Mathematics 111. Students are not encouraged to undertake a major in chemistry unless they have passed those prerequisite courses at a good level of proficiency. A knowledge of simple computer programming is essential. This may be achieved either by self study (a syllabus is available) or by taking a course such as Computer Science 311. As a minimum the following additional courses must then be completed for a major in chemistry: (1) Chemistry 301, 302, 303, 357-358, 389-390; (2) Mathematics 112, 214, 215, 216, and 218; and (3) Physics 208. This sequence is a core program in chemistry. It is anticipated that the student will, through elective courses, extend it substantially in whatever direction suits his or her own needs and interests. It is particularly important that those going on to do graduate work in chemistry recognize that these requirements are minimal, and such students are strongly urged to supplement their programs, where possible, with Chemistry 404, 405, 605, 606, 607, 668, 681, and German (or Russian). Even students not planning graduate work in chemistry should consider advanced work in physics and mathematics, courses in the biological sciences, and advanced work in chemistry, as possible extensions of the basic program.

The Honors Program

The Honors Program in chemistry offers superior students an opportunity to study independently in seminars and to gain additional experience by engaging in research during the senior year. It is particularly recommended to those who plan graduate work in chemistry. Prospective candidates should complete the introductory organic chemistry and physical chemistry sequences by the end of the junior year. However, failure to have completed those courses in the junior year does not in itself disqualify a student from the Honors Program. Completion of the Program at a high level of performance leads to the degree of Bachelor of Arts with honors in chemistry. The requirements for admission to the Honors Program are an above median cumulative average and permission of the Department. Prospective candi-

dates should discuss their plans with their advisers by March 1 of their junior year. To be awarded honors, candidates must show outstanding performance in one of the following: 421, 433, 461, 477, and, in addition, 498.

Distribution Requirement

The distribution requirement in physical sciences is satisfied in chemistry by Chemistry 103, 207, or 215 and 104, 208, or 216.

General identification of the courses listed below is as follows:

Inorganic: 410, 421, 605, 606, 607, 716.

Analytical: 300, 433, 625, 627, 628.

Organic: 253, 357-358, 461, 665-666, 765, 766, 770, 774.

Physical and theoretical: 287-288, 289-290, 389, 390, 477, 678, 681, 789, 794, 796, 798.

Bioorganic and biophysical: 668, 672, 677, 686, 782.

Experimental: 251, 252, 301, 302, 303, 404, 405.

Environmental: 200.

Note: Students registered for laboratory courses who do not appear at the first meeting of the laboratory will forfeit their registration. Students and members of the teaching staff are required to wear safety glasses or approved eye-protective devices in all chemistry laboratories. Those who fail to cooperate with the safety program may be asked to leave the laboratories.

103-104 Introduction to Chemistry 103 fall term only. 104 spring term only. Credit three hours a term. Enrollment limited. Recommended for students who have not had high school chemistry and for those needing a less mathematical course than Chemistry 207-208. Chemistry 103 is prerequisite to Chemistry 104. Lectures, M W 11:15 or 12:20. Laboratory, T or Th 8-11, F 10:10-1:10, M W or F 1:25-4:25. Preliminary examinations may be held in the evening. Fall term, R. Hoffmann. Spring term, B. Ganem.

An introduction to chemistry with emphasis on the important principles and facts of inorganic and organic chemistry.

200 Man In His Chemical Environment Fall term. Credit three hours. Enrollment limited. Prerequisites: Chemistry 103-104 or 207-208. Lectures, T Th 12:20 and a discussion hour to be arranged. F. W. McLafferty.

The chemical aspects of the human environment including the composition and properties of materials as these affect man's environment. Chemical limitations on the balance between survival and quality of living.

207-208 General Chemistry 207 fall term only. 208 spring term only. Credit: fall term, three hours; spring term, four hours. Enrollment limited. Recommended for those students who will take further courses in chemistry. Prerequisite: high school chemistry. Chemistry 207 or 103-104 is prerequisite to 208. Preliminary examinations will be held in the evening. Lectures, fall term T Th 9:05, 10:10, or 12:20; spring term T Th 9:05 or 10:10. Laboratory, T Th or F 8-11; M T W Th or F 1:25-4:25. Spring term, one additional recitation hour to be arranged. Fall term, F. R. Scholer and E. L. Muetterties. Spring term, R. C. Fay.

The important chemical principles and facts are covered, with considerable attention given to the quantitative aspects and to the techniques that are important for further work in chemistry. Second term laboratory includes a systematic study of qualitative analysis.

Note: Entering students exceptionally well prepared in chemistry may receive advanced placement credit for Chemistry 207-208 by demonstrating competence in the Advanced Placement Examination of the College Entrance Examination Board, or in the departmental examination given at Cornell before classes start in the fall (see page 19).

215-216 General Chemistry and Inorganic Qualitative Analysis 215 fall term only. 216 spring term only. Credit: fall term, four hours; spring term, five hours. Enrollment limited. Recommended for students who intend to specialize in chemistry or in closely related fields. Prerequisites: high school chemistry and physics at a grade of 90 or higher. Chemistry 215 is prerequisite to 216. Coregistration is a calculus course at the level of Mathematics 111 or 191 and/or high school calculus required. Calculus will be used in the course. Preliminary examinations may be held in the evening. Fall term: lectures, M W F 12:20; one laboratory period, T or Th 10:10-1:10, or T W Th or F 1:25-4:25. Spring term: lectures or recitations, M W F 12:20; two laboratory periods, M T 1:25-4:25, T Th 10:10-1:10, W F 8-11, W F 1:25-4:25, Th 1:25-4:25 and S 8-11. Fall term, J. R. Wiesenfeld. Spring term, F. R. Scholer.

An intensive, systematic study of the laws and concepts of chemistry, with considerable emphasis on mathematical aspects. Laboratory work will cover both qualitative and quantitative analysis.

251 Introduction to Experimental Organic Chemistry Fall term. Credit two hours. Recommended for nonchemistry majors. Prerequisite or parallel: Chemistry 253 or 357, or consent of the instructor. Preliminary examinations may be held in the evening. One lecture W 8 a.m. or 7:30 p.m. and laboratory M T W or Th 1:25-4:25. A. G. Schultz and B. Ganem.

An introduction to synthesis and the separation and handling of materials including applications of many types of chromatography, simple and fractional distillation, crystallization, extraction, and others.

252 Elementary Experimental Organic Chemistry Spring term. Credit two hours. Recommended for nonchemistry majors. Prerequisite: Chemistry 251. Preliminary examinations may be held in the evening. One lecture W 7:30 p.m. and laboratory M T W or Th 1:25-4:25. A. G. Schultz and M. F. Semmelhack.

A continuation of Chemistry 251.

253 Elementary Organic Chemistry Either term. Credit four hours. Primarily for students in the premedical and biological curricula. Prerequisite: Chemistry 104 at a grade of C or better, or 208, or 216. Coregistration in Chemistry 251 is recommended. Preliminary examinations may be held in the evening. Lectures, M W F S 10:10. Fall term, C. A. Brown. Spring Term, G. M. Loudon.

A study of the occurrence and properties of organic molecules and the mechanisms of organic reactions, including a brief introduction to the organic chemistry of biological systems. The student should determine the entrance requirements of the particular medical school he or she wishes to enter. Students may obtain six hours credit by taking Chemistry 251-253 or eight hours credit by taking 253-301 or 253, 251 and 252.

287-288 Introductory Physical Chemistry 287 fall term only. 288 spring term only. Credit three hours a term. Prerequisites: Chemistry 208 or 216 and Mathematics 111-112 or consent of the instructor. Chemistry 287 is prerequisite to 288. Lectures, W F 9:05, occasional lectures, M 9:05. Recitation, M W or F 1:25. Examinations may be given M 9:05 or evenings. Fall term, E. L. Elson. Spring term, A. C. Albrecht.

A systematic treatment of the fundamental principles of physical chemistry.

289-290 Introductory Physical Chemistry Laboratory 289 fall term only. 290 spring term only. Credit two hours a term. Chemistry 289 is prerequisite to 290. Coregistration in Chemistry 287-288 is required. Laboratory lecture, S 9:05. Two laboratory periods, M T or W Th 1:25-4:25 or, if warranted by sufficient registration, F 1:25-4:25 and S 8-11. First hours of laboratory on M W or F devoted to Chemistry 287 recitation. Fall term, E. L. Elson. Spring term, S. H. Bauer.

The development of needed skills in the experimental aspects concerned with the fundamental principles of physical chemistry.

300 Quantitative Chemistry Fall term. Credit two hours. Prerequisite: Chemistry 208 or advanced placement in chemistry. Lecture M 12:20. One laboratory M T W Th or F 1:25-4:25 or T Th 8-11. J. M. Burlitch.

A laboratory course designed to emphasize practice with the more common quantitative procedures and techniques essential to laboratory work in the sciences. The relationship between theory and application will be stressed.

301 Experimental Chemistry I Spring term. Credit four hours. Prerequisite: Chemistry 216 or 300, and Chemistry 253 or 357. Parallel registration with Chemistry 253 is not recommended. Preliminary examinations may be held in the evening. Lectures, M W 8. Two laboratory periods M W 1:25-4:25; T Th 8-11; T Th 1:25-4:25. A. G. Schultz and M. F. Semmelhack.

An introduction to synthesis and the separation and handling of materials including applications of many types of chromatography, simple and fractional distillation, crystallization, extraction, and others.

[302 Experimental Chemistry II Fall term. Credit four hours. Prerequisite: Chemistry 301. Preliminary examinations may be held in the evening. Lectures, T Th 8. Two laboratory periods, T Th 9-12 or T Th 1:25-4:25. Not offered in 1974-75.]

303 Experimental Chemistry III Fall term. Credit four hours. Commencing with the academic year 1975-76, this course will be offered in the spring term only. Prerequisites: Chemistry 302 and 389. Co-registration in Chemistry 389 is acceptable. A knowledge of computer programming is essential. Lectures, M W 8. Two laboratory periods, M W 1:25-4:25; T Th 8-11; T Th 1:25-4:25. Each laboratory section limited to eighteen students. S. H. Bauer and R. F. Porter.

An introduction to the techniques of vacuum line construction and operation; the principles and assembly of electronic measuring devices, optics, and kinetics.

357-358 Introductory Organic Chemistry 357 fall term only. 358 spring term only. Credit three hours a term. Prerequisite: Chemistry 208, or 216, or advanced placement in chemistry. Chemistry 357 is prerequisite to Chemistry 358. Parallel registration in Chemistry 251 or 301 is recommended. Preliminary examinations may be held in the evening. Lectures, M W F 9:05. Optional recitations may be offered. Fall term, D. A. Usher. Spring term, J. Meinwald.

A systematic study of the more important classes of carbon compounds—reactions of their functional groups, methods of synthesis, relations, and uses.

389-390 Physical Chemistry I and II 389 fall term only. 390 spring term only. Credit four hours a term. Prerequisites: Mathematics 214, 215, 216, 218 or 221, Physics 208, Chemistry 208 or 216 or consent of the instructor. Chemistry 389 is prerequisite to 390. Lectures, M W F 10:10. Make-up lectures, W 7:30 p.m. Examinations, Th 7:30 p.m. Fall term, M. E. Fisher. Spring term, R. F. Porter.

A study of the principles of physical chemistry from the standpoint of the laws of thermodynamics and kinetic theory. At the level of *Thermal Properties of Matter* by W. L. Kauzmann.

404 Advanced Measurements Laboratory Spring term. Credit four hours. Commencing with the academic year 1975-76, this course will be offered in the fall term only. Prerequisite: Chemistry 303. Laboratory, M T F 1:25, and occasional evening lectures.

Alternate hours may be arranged if necessary. First meeting will be at 4:30 p.m. on first class day of semester. J. R. Wiesenfeld.

Applications of modern experimental techniques in a variety of fields. Emphasis on kinetics, spectroscopy, vacuum, and electronics.

405 Techniques of Modern Synthetic Chemistry

Spring term. Credit four hours. Enrollment limited. Selection will be based on grades in Chemistry 301, 302, and 303. Prerequisite: Chemistry 303. Laboratory time required: twelve hours each week including at least two four-hour sessions at times to be arranged. First meeting will be at 4:30 p.m. on first class day of semester. J. M. Burlitch.

The syntheses of complex organic and inorganic molecules will be carried out with emphasis on the following techniques: vacuum line; high pressure; high temperature solid state; inert atmosphere; non-aqueous solvents; radioactive labeling; photochemical and electrochemical methods; solid phase peptide synthesis; and macro and micro techniques.

[410 Inorganic Chemistry Fall term. Credit four hours. Prerequisite: Chemistry 389-390. Lectures, M W F 11:15. Two evening examinations to be arranged. Not offered in 1974-75.]

421 Introduction to Inorganic Research Either term. Credit two to four hours. Prerequisites: Chemistry 303 and 389-390, or 287-288 and 289-290 with an average of B- or better, or consent of the instructor. Hours to be arranged. Selected faculty.

Informal advanced laboratory and library work, planned individually in consultation with a staff member, involving the preparation and characterization of inorganic substances. A written report is required.

433 Introduction to Analytical Research Either term. Credit two to four hours. Prerequisites: Chemistry 303 and 390 with an average of B- or better, or consent of the instructor. Hours to be arranged. Selected faculty.

Informal research in the field of analytical chemistry involving both laboratory and library work.

461 Introduction to Organic Research Either term. Credit two to four hours. Enrollment limited to those having a record of B- or better in prerequisite courses. Prerequisites: Chemistry 302 and 358, or consent of the instructor. Hours to be arranged. Selected faculty.

Informal research in the field of organic chemistry involving both laboratory and library work.

477 Introduction to Research in Physical Chemistry Either term. Credit two to four hours. Prerequisite: Chemistry 390 at an average of B- or better and consent of the instructor. Hours to be arranged. Selected faculty.

Informal advanced laboratory and library work in physical chemistry planned individually in consultation with a staff member.

498 Honors Seminar and Research Spring term. Credit four hours. Prerequisites: an outstanding performance in one of the following: Chemistry 421, 433, 461, or 477, and admission to the Honors Program. Seminar, W 1:30. Laboratory hours to be arranged. W. T. Miller.

The seminar will be an informal presentation and discussion of selected topics in which all members participate. Individual research will be on advanced problems in chemistry under the guidance of a staff member. A written report on the research results is required.

600 General Chemistry Seminar Throughout the year. No credit. Required of all graduate students except those majoring in organic or bioorganic chemistry. Open to qualified juniors and seniors. Th 4:40.

605 Advanced Inorganic Chemistry I (Symmetry and Structure) Fall term. Credit four hours. Prerequisite: Chemistry 389-390 or consent of the instructor. Lectures, M W F 11:15. R. C. Fay.

This is the first of a three-term sequence. Symmetry and structure of discrete molecules, translational symmetry of arrays of molecules in crystals. Group theory at the level of Cotton's *Chemical Application of Group Theory*, Schonland's *Molecular Symmetry*, and Hall's *Group Theory and Symmetry in Chemistry*. Applications include molecular orbital theory, hybridization, and molecular vibrations. Outside readings in the chemistry of nontransition elements at the level of Wilkinson's *Advanced Inorganic Chemistry* will be assigned.

606 Advanced Inorganic Chemistry II (Structure and Dynamics) Spring term. Credit four hours. Prerequisite: Chemistry 605 or consent of the instructor. Lectures, M W F 11:15. E. L. Muetterties.

The second of a three-term sequence. The development of a general background and systematics through which structure, stereochemistry, and reaction mechanism can be understood and anticipated. Outside readings at the level of Murrell, Kettle, and Tedder's *Valence Theory*, Ballhausen's *Introduction to Ligand Field Theory*, Basolo and Pearson's *Inorganic Reaction Mechanisms*, and Longford and Gray's *Ligand Substitution Processes*.

[607 Advanced Inorganic Chemistry III (Structure and Properties)] Fall term. Credit four hours. Prerequisite: Chemistry 605 or consent of the instructor. Lectures, T Th 8:30-9:55. M. J. Sienko. Not offered in 1974-75.]

622 Chemical Communication Spring term. Credit three hours. Offered in alternate years. Enrollment limited to thirty students. Intended primarily for research-oriented students. Prerequisites: Chemistry 358, Biological Science 102, and Biochemistry 231. Lectures M W 11:15, and F 11:15 at the discretion of the instructor. T. Eisner and J. Meinwald.

The production, transmission, and reception of chemical signals in communicative interactions of animals, plants, and microorganisms. Specific topics treated with varying emphasis on chemical, biochemical, neurobiological, ecological, and evolutionary principles.

625 Advanced Analytical Chemistry I Fall term. Credit four hours. Open to undergraduates with consent of the instructor. Prerequisite: Chemistry 288 or 390. Lectures, M W F 8. Examinations will be held T 7:30 p.m. W. D. Cooke.

627 Advanced Analytical Chemistry II Spring term. Credit three hours. Offered in alternate years. Primarily for graduate students. Prerequisite: Chemistry 288 or 390. Lectures, T Th 9:05.

[628 Advanced Analytical Chemistry III] Spring term. Credit three hours. Offered in alternate years. Primarily for graduate students. Prerequisite: Chemistry 288 or 390. Lectures, T Th 9:05. Not offered in 1974-75.]

650-651 Seminar in Organic Chemistry 650 fall term only. 651 spring term only. No credit. Required of all graduate students majoring in organic chemistry. Open to qualified juniors and seniors. M 8:15 p.m.

665 Advanced Organic Chemistry Fall term. Credit four hours. Primarily for graduate students and upperclass undergraduates. Prerequisites: Chemistry 253 or 358 and Chemistry 390 or consent of the instructor. Lectures, M W F 12:20. Make-up lectures, W 7:30 p.m. Examinations, Th 7:30 p.m. C. F. Wilcox.

An analysis of the simplest organic reactions. The principal aim is to provide the student with the skills and background needed to predict the reactivity patterns and stereochemical preferences of new molecules in a variety of experimental environments.

666 Synthetic Organic Chemistry Spring term. Credit four hours. Primarily for graduate students and upperclass undergraduates. Prerequisite: Chemistry 665 or consent of the instructor. Lectures, T Th 12:20 and W 4:40. M. F. Semmelhack.

Modern techniques of synthesis; applications of organic reaction mechanisms to the problems encountered in rational multistep synthesis, with particular emphasis on newer developments.

668 Chemical Aspects of Biological Processes Fall term. Credit four hours. Prerequisites: Chemistry 358 and 389-390 or 287-288 or their equivalents. Lectures, M W F 10:10. G. M. Loudon.

Biochemical systems, bioenergetics, enzymes, metabolic pathways. This course forms the chemical basis for the graduate program in molecular biology.

672 Enzyme Catalysis Spring term. Credit four hours. Primarily for graduate students in chemistry and biochemistry. Prerequisites: Chemistry 357-358 and 389-390, or the equivalent, and a course in general biochemistry. Lectures, M W F 11:15. D. A. Usher.

[677 Chemistry of Nucleic Acids] Spring term. Credit four hours. Offered in alternate years. Primarily for graduate students. Prerequisites: Chemistry 358 and 390. Lectures, M W F 8. S-U grades only. Not offered in 1974-75.]

678 Thermodynamics Spring term. Credit four hours. Primarily for graduate students. Prerequisite: Chemistry 288 or 390. Lectures, T Th S 10:10 and a discussion period to be arranged. R. F. Porter.

681 Physical Chemistry III Fall term. Credit four hours. Prerequisites: Chemistry 288 or 390; Mathematics 214, 215, 216, 218; and Physics 208. Lectures, M W F 9:05. B. Widom.

A discussion of advanced topics in physical chemistry, including an introduction to the principles of quantum theory and statistical mechanics, atomic and molecular spectra, and elementary valence theory.

686 Physical Chemistry of Proteins Spring term. Credit four hours. Offered in alternate years. Primarily for graduate students. Prerequisite: Chemistry 288 or 390. Lectures, M W F 8, S 11:15 and occasional lectures, W 7:30 p.m. H. A. Scheraga.

700 Baker Lectures Either term. No credit. T Th 11:15. Fall term, J. Lewis, Cambridge University.

701-702 Introductory Graduate Seminar in Analytical, Inorganic, and Physical Chemistry 701 fall term only. 702 spring term only. No credit. Required of all first-year graduate students majoring in analytical, inorganic, physical, and theoretical chemistry, and molecular biology. Hours to be arranged. J. H. Freed.

[716 Selected Topics in Advanced Inorganic Chemistry] Fall term. Credit three hours. Prerequisite: Chemistry 390. Lectures, T Th 12:20. S-U grades only. Not offered in 1974-75.]

765 Physical Organic Chemistry I Spring term. Credit four hours. Primarily for graduate students. Prerequisite: Chemistry 665 or consent of the instructor. Lectures, M W F 12:20. Make-up lectures, W 7:30 p.m. Examinations, Th 7:30 p.m. C. F. Wilcox.

[766 Physical Organic Chemistry II] Spring term. Credit three hours. Primarily for graduate students. Prerequisite: Chemistry 765 or consent of the instructor. Lectures, T Th 12:20. Not offered in 1974-75.]

[770 Selected Topics in Organic Chemistry] Fall term. Credit three hours. Primarily for graduate students. Prerequisites: Chemistry 665-666 or consent of the instructor. Lectures, T Th 12:20. Not offered in 1974-75.]

[774 Chemistry of Natural Products] Fall term. Credit three hours. Primarily for graduate students. Prerequisites: Chemistry 665-666. Lectures, T Th 12:20. Not offered in 1974-75.]

780 Principles of Chemical Kinetics Fall term. Credit four hours. Prerequisites: Chemistry 681 and 678 or consent of the instructor. Lectures, M W F 9:05. G. G. Hammes.

782 Special Topics in Molecular Biology Spring term. No credit. Primarily for graduate students. Lectures, T Th 11:15. Dates to be announced.

[789 X-ray Crystallography] Fall term. Credit four hours. Prerequisite: Physics 325 or consent of the instructor. M W F 12:20. Not offered in 1974-75.]

793 Quantum Mechanics I Fall term. Credit four hours. Prerequisites: Chemistry 681 and coregistration in Mathematics 421, and Physics 431 or equivalents, or consent of the instructor. Lectures, T Th S 9:05. A. C. Albrecht.

794 Quantum Mechanics II Spring term. Credit four hours. Prerequisites: Chemistry 793 or the equivalent and coregistration in Physics 432 and Mathematics 422, or consent of the instructor. Lectures, M W F 10:10. R. Hoffmann.

796 Statistical Mechanics Spring term. Credit four hours. Primarily for graduate students. Prerequisite: Chemistry 793 or the equivalent. Lectures, M W F 9:05. M. E. Fisher.

798 Selected Topics in Physical Chemistry Spring term. Credit three hours. Lectures, T Th S 9:05. J. H. Freed.

The Classics

F. M. Ahl, chairman; E. Asmis, A. Betensky, K. M. Clinton, J. E. Coleman, W. R. Johnson, G. M. Kirkwood, D. L. Malone, G. M. Messing, P. Pucci

The Department of the Classics offers majors in Classics, Greek, Latin, and Classical civilization.

Classics

Those whose major study is in Classics must complete twenty-four hours of advanced courses in Greek or Latin (courses numbered above 201) and fifteen hours in related subjects, selected after a conference with the adviser. Related subjects for this purpose are: all courses listed under the headings Classical Linguistics, Classical Archaeology, and Classical Civilization; and selected courses in com-

parative literature, linguistics, modern foreign languages and literatures, and Semitic languages and literatures.

Classical Civilization

Those whose major study is in Classical civilization must complete (a) qualification in Latin and Greek or proficiency in either; (b) twenty-four hours selected from the courses listed under Classical Civilization, Classical Archaeology, Latin, and Greek; and (c) fifteen hours in related subjects. Related subjects for this purpose may be any courses in the humanities selected in conference with the adviser to form a coherent and significant experience in the relation between antiquity and subsequent periods in the Western tradition; related subjects may include courses listed under Classical Civilization or Classical Archaeology which have not been used to satisfy requirement (b).

Greek

Those whose major study is in Greek must complete twenty-four hours of advanced courses in Greek and fifteen hours in related subjects (including Latin). One or more courses offered by the Department of Comparative Literature may be counted towards the required twenty-four hours of Greek if students obtain the prior approval of their major adviser. Related subjects for this purpose are as defined under Classics, with the addition of Latin.

Latin

The major in Latin is parallel to the major in Greek.

Study Abroad

Cornell is a joint participant with a number of universities in the Intercollegiate Center for Classical Studies in Rome, where Classics majors and other students with a substantial interest in Classics are able to do a term or more of work in Latin, Greek, ancient history, classical and later art, archaeology, and Italian. Cornell students receive regular credit. Class work is interspersed and coordinated with field trips. Detailed information on the Center is available in the Department of Classics office, 121 Goldwin Smith Hall.

The Honors Program

Candidates for the degree of Bachelor of Arts with honors in Classics, Greek, Latin, or Classical civilization must fulfill the requirements of the appropriate major study, as prescribed in the foregoing paragraphs, and must also complete successfully the special honors courses 370, 471, and 472. Credit for honors courses may be included in the hours required for the major study. Students who wish to become candidates for honors, who have a cumulative

average of B- or better and have demonstrated superior performance in Classics courses (Greek, Latin, and Classical civilization) should, after consulting a member of the Department, submit an outline of their proposed honors work to the Honors Committee three weeks before preregistering for the second term of the junior year. The Committee will take into consideration whether or not the applicant's progress in Greek or Latin (or both) is adequate for the demands of the project.

Greek Civilization, Roman Civilization

See pp. 27 and 29 and the Programs in Greek and Roman Civilization at the end of the Courses of Instruction section.

Distribution Requirement

The distribution requirement in the humanities is satisfied in Classics by (a) any two courses in Greek beginning with 201 or in Latin beginning with 207 that form a reasonable sequence; or (b) any two of the following: Classics 119, 120, 200, 220, 221, 222, 224, 225, 236, 300, 320, 324, 331, 332, 336, 339; Comparative Literature 359. This requirement is also satisfied by Archaeology 100 and any one of the courses listed under Classical Archaeology below.

Greek

101 Greek for Beginners Either term. Credit four hours. Fall term, M W Th F 11:15 or M W Th F 12:20. E. Asmis and G. M. Kirkwood. Spring term, M T W F 1:25. D. L. Malone.

Introduction to Attic Greek. Designed to enable the student to read the ancient authors as soon as possible.

103 Attic Greek Either term. Credit three hours. Prerequisite: Greek 101 or equivalent. Fall term, M W F 12:20. J. E. Coleman. Spring term, M W F 1:25. G. M. Kirkwood.

111 Modern Greek Spring term. Credit three hours. M W F 9:05. G. M. Messing.

Introduction to the language and reading of easy texts.

201 Attic Authors: Plato, *Apology*; Euripides, *Medea* Fall term. Credit three hours. Prerequisite: Greek 103. M W F 1:25. E. Asmis.

Attention is given both to the exact understanding of the Greek texts and to relevant broad literary and historical questions.

203 Homer Spring term. Credit three hours. Prerequisite: Greek 103. M W F 11:15. F. M. Ahl.

Readings in Homeric epic and consideration of such literary problems as the authorship, unity, and style of the epics and their relation to oral and literary epic.

[209-210 Greek Composition] 209 fall term, 210 spring term. Credit two hours per term. Prerequisite: Greek 103 or the equivalent. Not offered in 1974-75.]

[301 Greek Historians] Fall term. Credit four hours. Prerequisite: Greek 203 or the equivalent. Not offered in 1974-75.]

[302 Greek Tragedy] Spring term. Credit four or five hours. An extra meeting once a week for an additional credit hour will be used for related reading in translation. Prerequisite: Greek 203 or the equivalent. Not offered in 1974-75.]

305 Aristophanes and Attic Prose Fall term. Credit four hours. Prerequisite: Greek 203 or the equivalent. T Th S 10:10. P. Pucci

306 Greek Melic, Elegiac, and Bucolic Poetry Spring term. Credit four hours. Prerequisite: Greek 203 or the equivalent. T Th S 10:10. G. M. Kirkwood.

401-402 Independent Study For qualified majors.

409-410 Advanced Greek Composition 409 fall term, 410 spring term. Credit two hours per term. Prerequisites: for 409, 209-210 or the equivalent; for 410, Greek 409 or the equivalent. Fall term, T Th 9:05. P. Pucci. Spring term, T Th 2:30. W. R. Johnson.

421 Advanced Readings in Greek Tragedy Fall term. Credit four hours. Prerequisite: two terms of Greek at the 300 level or consent of the instructor. M W F 12:20. F. M. Ahl.

Euripides' *Bacchae*; Aeschylus' *Oresteia*.

[444 Greek Philosophy] Spring term. Credit four hours. Prerequisite: two terms of Greek at the 300 level or consent of the instructor. Not offered in 1974-75.]

629 Problems in Minoan and Mycenaean Archaeology

See under Classical Archaeology below.

671 Seminar Fall term. Credit four hours. Th 3:35-5:30. K. Clinton.

Greek epigraphy.

672 Seminar Spring term. Credit four hours. Th 3:35-5:30. E. Asmis.

Problems in Greek philosophy.

701-702 Independent Study for Graduate Students

Latin

Final placement in freshman Latin courses, other than beginning Latin, is normally determined by an examination administered by the Department of Classics during Orientation Week preceding the fall term, or, if necessary, in the second half of the fall term. Tentative placement is made on the basis of the pre-

vious training listed below as prerequisite for each course and of College Board Achievement Test scores.

105 Latin for Beginners Fall term. Credit four hours. M W F 8 and Th 9:05 or M W Th F 1:25. A. Betensky.

An introductory course in the essentials of the Latin language, designed for rapid progress towards reading the principal Latin writers.

106 Elementary Latin Spring term. Credit three hours. Prerequisite: Latin 105 or placement by departmental examination. M W F 1:25. A. Betensky.

Continues the work of Latin 105, followed by readings from various authors.

105-106 Intensive Latin Spring term. Credit seven hours. M T W Th F S 12:20. Instructor to be announced.

This course combines in one semester the work of Classics 105 and 106 (Latin for Beginners and Elementary Latin). It is designed to bring the students as quickly as possible to a reasonable fluency and exactitude in reading the easier authors. The oral method of teaching Latin will be used throughout.

108 Freshman Course: Latin Letters Fall term. Credit three hours. Prerequisite: two years of high school Latin. M W F 10:10. W. R. Johnson.

Begins with a comprehensive but rapid review of the fundamentals of Latin. Selections from Cicero's and/or Pliny's letters will be read.

207 Catullus and Horace Fall term. Credit three hours. Prerequisite: Latin 106 or 108 or three years of high school Latin. M W F 1:25. W. R. Johnson.

Selections from the poets will be read with emphasis on literary questions.

208 Literature and Life of Rome Spring term. Credit three hours. Prerequisite: Latin 207 or 215 or the equivalent. M W F 12:20 A. Betensky.

Readings from Ovid's *Metamorphoses*.

215 Roman Comedy Fall term. Credit three hours. Prerequisite: Latin 106 or 108 or three units of entrance Latin. M W F 10:10. G. M. Kirkwood.

Plautus and Terence; at least one comedy of each playwright.

216 Virgil Spring term. Credit three hours. Prerequisite: Latin 207 or 215 or the equivalent. M W F 9:05. P. Pucci.

Selections from Virgil's *Eclogues*, *Georgics*, and *Aeneid*.

241-242 Latin Composition 241 fall term, 242 spring term. Credit two hours per term. Prerequisite: for 241, Latin 106 or 108 or consent of the instructor; for 242, Latin 241 or consent of the instructor. Fall term, T 12:20 and a second hour to be ar-

ranged. A. Betensky. Spring term, T Th 12:20.
D. Malone.

An exercise course to provide review and further study of the forms and, more especially, the syntax of Latin. Recommended as companion course to Latin 207-208 or 215-216. The second meeting is devoted entirely to exercise in reading passages of Latin at sight.

315 Roman Satire Fall term. Credit four hours.
Prerequisite: Latin 208 or 216. M W F 11:15.
A. Betensky.

Readings from Lucretius, Horace, Juvenal, Petronius, Tacitus, and Apuleius.

316 Roman Philosophical Writers Spring term.
Credit four hours. Prerequisite: Latin 315 or the equivalent. T Th S 11:15. E. Asmis.

Readings from Lucretius, Cicero, and others.

[317 Roman Historiography: Livy, Tacitus, Sallust]
Fall term. Credit four hours. Prerequisite: Latin 208 or 216. Not offered in 1974-75.]

[318 Roman Elegy] Spring term. Credit four hours.
Prerequisite: Latin 317 or the equivalent. Not offered in 1974-75.]

367-368 Medieval Latin Literature 367 fall term only. [368 spring term only, not offered in 1975.]
Credit four hours for 367 fall term. Prerequisite: three years of high school Latin or consent of the instructor. Hours to be arranged. Fall term, G. M. Messing.

411 Horace's Lyric Poetry Spring term. Credit four hours. For upperclassmen and graduate students. Prerequisite: two terms of Latin at the 300 level or consent of the instructor. T Th 1:25 and a third hour to be arranged. P. Pucci

The reading will analyze in depth the *locus amoenus* and the *symposium* in Horace's odes, as the paradigmatic images of the poet's metaphysical desire.

[441-442 Latin Composition: Advanced Course]
441 fall term, 442 spring term. Credit two hours per term. For undergraduates who have completed Latin 241-242 and for graduate students. Not offered in 1974-75.]

451-452 Independent Study For qualified majors.

679 Seminar Fall term. Credit four hours. T 3:35-5:30. D. L. Malone.

Readings in late Augustan poetry.

680 Seminar Spring term. Credit four hours. W 3:35-5:30. W. R. Johnson.

Ovid.

751-752 Independent Study for Graduate Students

Honors Courses

370 Honors Course Spring term. Credit four hours. To be taken in the junior year. F. M. Ahl.

A program of readings and conferences centered on an author or topic chosen in accordance with the special interests of the students and instructor.

471 Honors Course Fall term. Credit four hours. To be taken in the senior year. F. M. Ahl.

Continuation of 370, with change of author or topic.

472 Honors Course: Senior Essay Spring term. Credit four hours. For students who have successfully completed Classics 471. Topics must be approved by the honors adviser at the end of the first term of the senior year. F. M. Ahl.

Classical Linguistics

425 Greek Dialects Fall term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. G. M. Messing.

Selected inscriptions will be read in the various ancient Greek dialects, including Mycenaean.

Comparative Indo-European Linguistics (Linguistics 631-632)

Classical Archaeology

The following courses may be used toward satisfaction of the intercollege concentration in archaeology; see above p. 39, where other courses dealing with Classical art and architecture are also listed.

220 Introduction to Classical Archaeology Fall term. Credit three hours. M W F 10:10. J. E. Coleman.

Life in the Classical world as revealed by the archaeologist's spade, from the pioneering discoveries to the results of modern scientific excavation: market places and sanctuaries; everyday objects and dedications to the gods; tombs and their treasures.

221 Minoan-Mycenaean Art and Archaeology Spring term. Credit three hours. M W F 2:30. J. E. Coleman.

The early age of Greece from the Neolithic period to the end of the Bronze Age, with special emphasis on Minoan and Mycenaean civilizations.

[320 The Archaeology of Classical Greece] Spring term. Credit four hours. Not offered in 1974-75]

629 Problems in Minoan and Mycenaean Archaeology Spring term. Credit four hours. Open to advanced students and by consent of the instructor. M 3:35-5:30. J. E. Coleman.

Seminar on the Greek Bronze Age. Topics in 1975 will include the coming of the Greeks, the volcanic eruption of Thera, and the Mycenaeans in Cyprus.

[630 Seminar in Classical Greek Archaeology] Spring term. Credit four hours. Not offered in 1974-75.]

Classical Civilization

119 Freshman Seminar in Greek Literature Either term. Credit three hours. Fall term, P. Pucci. Spring term, instructor to be announced.

120 Freshman Seminar in Latin Literature Either term. Credit three hours. Fall term, D. L. Malone. Spring term, instructor to be announced.

200 The Greek and Roman Experience Fall term. Credit three hours. M W F 2:30.

A general introduction to Greco-Roman civilization. The approach will be unusual in that most members of the Classics Department and some professors in related fields will participate, giving lectures within the area of their special scholarly interests. This organization will permit a wide range of lectures on prehistory and history; archaeology and art; literature and languages; philosophical, religious, and social questions. Emphasis will be on the Greco-Roman response to basic and enduring social and intellectual problems, as expressed in the poetry, philosophy, and religion of the Greeks and Romans, in their art, and in their political and social institutions. Ample opportunity will be given for discussion and student participation. Selected readings, in translation, in important Greek and Latin works of literature, history, and philosophy.

220 Introduction to Classical Archaeology

See above under Classical Archaeology.

221 Minoan-Mycenaean Art and Archaeology

See above under Classical Archaeology.

[222 Greek Science] Spring term. Credit three hours. Open by consent of the instructors to freshmen, sophomores, and juniors. Not offered in 1974-75.]

[224 Greek Philosophy] Fall term. Credit three hours. Open by consent of the instructor to freshmen, sophomores, and juniors. Not offered in 1974-75.]

[225 Roman Philosophy] Spring term. Credit three hours. Not offered in 1974-75.]

236 Greek Mythology (Also Comparative Literature 236) Fall term. Credit three hours. Students who have had Classics 122 may register only with the permission of the instructor. M W F 3:35. W. R. Johnson.

A survey of the Greek myths, with emphasis on myths which have entered the postclassical Western tradition. Of the aspects of mythology to be studied

the following will be among the most important: what "myth" meant to the Greeks; the factors and influences involved in the creation of myths; and the significance of myths in daily life, religion, and thought. Comparison and contrast of Greek with Roman attitudes to myth.

300 Greek and Roman Drama (also Comparative Literature 300) Spring term. Credit four hours. M W F 11:15. G. M. Kirkwood.

A study, by lecture and discussion, of the evolution of forms and themes in ancient tragedy and comedy as exemplified by representative plays, read in translation, of Aeschylus, Sophocles, Euripides, Aristophanes, Menander, Plautus, Terence, and Seneca. Consideration is given also to the origins of tragedy and comedy and to the ancient theatre. Main emphasis is on tragedy, with some attention to the influence of Greek tragedy and Seneca on later European tragedy.

304 Introduction to Roman Law Spring term. Credit three hours. M W F 9:05. D. L. Malone.

While based upon a history of the formal structure of Roman law from the *XII Tables* to the *Digest*, Classics 304 will deal with Roman law in its wider ramifications: law as a weapon in political strategy; law as it appears in Roman philosophy, rhetoric, education, and literature (comedy and satire); law as a mirror of society (the family, slavery, social classes, position of women).

[320 The Archaeology of Classical Greece] Spring term. Credit four hours. Not offered in 1974-75.]

[324 Socrates: His Place in the History of Thought] Spring term. Credit four hours. Not offered in 1974-75.]

331 Greek Foundations of Western Literature (also Comparative Literature 331) Fall term. Credit four hours. M W F 12:20. K. Clinton.

Reading and discussion of major works of Greek literature, in translation, from Homer through the period of the Roman empire. They will be considered primarily as works of art, with special attention given to the traditions of the various genres.

332 Pagan and Christian at Rome (also Comparative Literature 332) Spring term. Credit four hours. M W F 2:30. F. M. Ahl.

This course will discuss the development of Roman thought in the light of the political changes at Rome during the first century B.C., and how, with the erosion of political liberty, people became more receptive to Christianity and other mystery religions. Reading selections will be drawn from Lucretius, Cicero, Vergil, Seneca, Lucan, Statius, Apuleius, Lucian, Marcus Aurelius, Jerome, Prudentius, and Augustine.

336 Foundations of Western Thought (also Comparative Literature 336) Spring term. Credit four hours. M W F 12:20. E. Asmis.

Topic for 1975: some models of the universe in Greek thought. A study of myth and scientific hypothesis in Greek concepts of the universe, with special emphasis on Plato, the atomist philosophers Democritus and Epicurus, and the Stoics.

339 Ancient Wit: An Introduction to the Theory and Form of Comic and Satiric Writing in Greece and Rome (also Comparative Literature 339) Fall term. Credit four hours. M W F 11:15. F. M. Ahl.

The aim is not only to provide an introduction to comedy, satire, and other humorous writing in Greek and Roman literature, but to discuss the ancient works in the light of modern theories of comedy and laughter. Discussion of the nature of laughter itself, in the light of both ancient and modern scholarship on the subject, from Plato's *Philebus* to Freud's *Wit and its Relation to the Unconscious* and Koestler's *The Act of Creation*. Examination of select works and passages of Homer, Euripides, Aristophanes, Hierocles, Lucian, Nonnus, Plautus, Horace, Martial, Juvenal, and Petronius.

[Humanism and the Renaissance (Comparative Literature 359)] Not offered in 1974-75.]

Classical Antiquity (History 261-262)

[The Roman Revolution 146-44 B.C. (History 461)] Not offered in 1974-75.]

[Early Imperial Rome 44B.C.-A.D. 70 (History 462)] Not offered in 1974-75.]

[Classical Greece, 510-404 B.C. (History 463)] Not offered in 1974-75.]

[Classical Greece, 404-338 B.C. (History 464)] Not offered in 1974-75.]

711-712 Independent Study for Graduate Students

Seminar in Latin Palaeography (History 664-665)

Ancient Philosophy (Philosophy 211)

[Plato and Aristotle (Philosophy 413)] Not offered in 1974-75.]

Comparative Literature

W. W. Holdheim, chairman; W. J. Kennedy, B. S. Pedersen, R. R. Roopnaraine, E. Rosenberg (English and comparative literature).

Also cooperating: M. H. Abrams, B. B. Adams, F. M. Ahl, C. Morón-Arroyo, E. Asmis, A. Berger, J. P. Bishop, E. A. Blackall, A. F. Caputi, P. J. Carden, M. A. Carlson, K. M. Clinton, A. M. Colby, H. Deinert, D. D. Eddy, A. V. Ettin, E. G. Fogel, S. L. Gilman, R. O.

González, P. A. Gottschalk, A. V. Grossvogel, D. I. Grossvogel, B. L. Hathaway, N. H. Hertz, T. D. Hill, W. R. Johnson, C. Kaske, R. E. Kaske, G. M. Kirkwood, G. Mazzotta, J. R. McConkey, H. S. McMillin, E. P. Morris, I. Rabinowitz, B. O. States, W. Wetherbee III.

The Department of Comparative Literature offers no undergraduate major program. Certain of its courses may, however, be counted toward the major requirements of other departments, at their option. For information consult the Classics, English, French, German, and Russian sections in this *Announcement*. For information about other related courses consult the offerings in Classics, English, German, Romance studies, Russian, Semitics, Asian studies, history, philosophy, the fine arts, music, and the theatre arts.

Distribution Requirement

The distribution requirement in the humanities may be satisfied by any of the 200 or 300-level courses in literature which form a sequence.

101 The Artist in Revolt Credit three hours. See the Freshman Seminars Program handout.

102 The Art of Narrative and the Unknown Credit three hours. See the Freshman Seminars Program handout.

103 Varieties of the Imagination in Literature Credit three hours. See the Freshman Seminars Program handout.

216-217 The Reshaping of Tradition in European Literature 216 fall term only; 217 spring term only. Credit three hours. Limited to twenty students. M W F 10:10. W. J. Kennedy.

Study and discussion of the telling and the retelling of landmark motifs in selected great books of the Western tradition. First semester: comparison of ancient and modern, e.g., Aeschylus' *Oresteia*, Sartre's *The Flies*, Homer's *Odyssey*, Joyce's *Ulysses*. Second semester: comparison of medieval, Renaissance, and modern, e.g., Dante's *Inferno*, T. S. Eliot's *Waste Land*, Molière's *Don Juan*, Camus's *Myth of Sisyphus*.

236 Greek Mythology (also Classics 236) Fall term. Credit three hours. Students who have had Classics 122 may register only with the consent of the instructor. M W F 3:35. W. F. Johnson.

A survey of the Greek myths, with emphasis on myths which have entered the postclassical Western tradition. Of the aspects of mythology to be studied the following will be among the most important: what "myth" meant to the Greeks; the factors and influences involved in the creation of myths; and the significance of myths in daily life, religion, and thought. Comparison and contrast of Greek with Roman attitudes to myth.

[242 The European Epic] Spring term. Credit three hours. C. Kaske. Not offered in 1974-75.]

293 Aspects of Modern Fiction Fall term. Credit three hours. Lectures and discussion. M W F 11:15. R. R. Roopnaraine.

A systematic introduction to the narrative techniques of the twentieth century novel. Writers to be studied will include, among others, Gide, Cela, Beckett, Slevov, Sartre, Pavese.

300 Greek and Roman Drama (also Classics 300) Spring term. Credit four hours. M W F 11:15. G. M. Kirkwood.

A study, by lecture and discussion, of the evolution of forms and themes in ancient tragedy and comedy as exemplified by representative plays, read in translation, of Aeschylus, Sophocles, Euripides, Aristophanes, Menander, Plautus, Terence, and Seneca. Consideration is given also to the origins of tragedy, with some attention to the influence of Greek tragedy and Seneca on later European tragedy.

[312 Comedy] Credit four hours. W. J. Kennedy. Not offered in 1974-75.]

316 Literature of the Age of Migration (also German 321) Fall term. Credit four hours. T Th 3:35. A. Berger.

Readings in the earliest history and literature of the Germanic tribes. The stories and histories of Attila, Ermanarich, Sigurtr, Hildebrand, and other heroes of the migration period. Readings in Paulus Diaconus, *The Thidrekssaga*, *Hildebrandslied*, *The Elder Edda*, Gregory of Tours, *Nibelungenlied*, and others. In English translation.

319 The Humanities in Liberal Education (also Spanish 390) Fall term. Credit four hours. T Th 1-2:15. C. Morón-Arroyo.

The course deals with the nature of humanistic knowledge in comparison to the natural and social sciences. The value of facts, generalization, comparison, aesthetic and human evaluation. The type and degree of truth and certainty we can reach in humanistic studies. It is divided in three parts: humanities, humaneness, humanism.

323-324 The Literature of Ancient Israel (also Semitics 330-331) Throughout the year. First term not prerequisite to the second. Credit four hours a term. Not open to freshmen. M W F 9:05. I. Rabinowitz.

323: the Old Testament. 324: several of the later books of the Old Testament, the Apocrypha, and the Dead Sea (Qumran) Scrolls. The ancient Israelite beliefs and cultural assumptions needed to comprehend the texts as literature will be discussed. All readings in English.

[329 Literature and Religion (also Spanish 399)] Fall term. Credit four hours. C. Morón-Arroyo. Not offered in 1974-75.]

331 Greek Foundations of Western Literature (also Classics 331) Fall term. Credit four hours. M W F 12:20. K. M. Clinton.

Reading and discussion of major works (in translation) of Greek literature from Homer through the period of the Roman empire. They will be considered primarily as works of art, with special attention given to the traditions of the various genres.

332 Pagan to Christian at Rome (also Classics 332) Spring term. Credit four hours. M W F 2:30. F. M. Ahl.

The course will discuss the development of Roman thought in the light of the political changes at Rome during the first century B.C., and how, with the erosion of political liberty, people became more receptive to Christianity and other mystery religions. Reading selections will be drawn from Lucretius, Cicero, Vergil, Seneca, Lucan, Statius, Apuleius, Lucian, Marcus Aurelius, Jerome, Prudentius, and Augustine.

336 Foundations of Western Thought (also Classics 336) Spring term. Credit four hours. M W F 12:20. E. Asmis.

Topic for 1975: some models of the universe in Greek thought. A study of myth and scientific hypothesis in Greek concepts of the universe, with special emphasis on Plato, the atomist philosophers, Democritus and Epicurus, and the Stoics.

339 Ancient Wit: An Introduction to the Theory and Form of Comic and Satiric Writing in Greece and Rome (also Classics 339) Fall term. Credit four hours. M W F 11:15. F. M. Ahl.

The aim of this course is not only to provide an introduction to comedy, satire, and other humorous writings in Greek and Roman literature, but to discuss the ancient works in the light of modern theories of comedy and laughter. Discussion of the nature of laughter itself, in the light of both ancient and modern scholarship on the subject, from Plato's *Philebus* to Freud's *Wit and its Relation to the Unconscious* and Koestler's *The Act of Creation*. Examination of select works and passages of Homer, Euripides, Aristophanes, Hierocles, Lucian, Nonnus, Plautus, Horace, Martial, Juvenal, and Petronius.

343-344 Medieval Literature Credit four hours per term. 343 fall term only. M W F 12:20. R. E. Kaske. 344 spring term only. M W F 12:20. G. Mazzotta.

Fall term: analysis and interpretation of great medieval literary works in translation. Though readings will vary somewhat from year to year, a typical program would be *Beowulf*; *Chanson de Roland*; *Njáls saga*; a romance of Chrétien; Wolfram's *Parzival*; Gottfried's *Tristan*, and/or *Sir Gawain and the Green Knight*; *Pearl*; *Piers Plowman*. Spring term: Dante in translation.

352 Classic and Renaissance Drama (also Theatre Arts 325) Fall term. Credit four hours. M W F 10:10. H. S. McMillin.

Readings in world drama from the Greeks through Shakespeare, including such dramatists as Aeschylus, Sophocles, Aristophanes, Plautus, Seneca, Shakespeare, Marlowe, Johnson, Lope de Vega, and Calderón.

353 European Drama 1660-1900 (also Theatre Arts 326) Spring term. Credit four hours. M W F 10:10. M. A. Carlson.

Readings from major dramatists from Molière to Ibsen, including such authors as Racine, Congreve, Sheridan, Schiller, Goethe, Hugo, Büchner, Gogol, Turgenev, Zola, Hauptmann, and Chekhov.

354 Modern Drama (also Theatre Arts 327) Spring term. Credit four hours. M W F 9:05. A. F. Caputi.

Readings from major dramatists of the twentieth century, including such authors as Shaw, Pirandello, Brecht, O'Casey, O'Neill, Williams, Miller, Lorca, Beckett, Ionesco, Genet, Pinter, Dürrenmatt, and Albee.

356-357 The Literature of Europe since the Renaissance Credit four hours a term. 356 fall term only. M W F 11:15. D. D. Eddy. 357 spring term only. M W F 11:15. T. L. Jeffers.

Fall term: the intellectual and cultural trends of the Renaissance, especially the responses of Renaissance intellectuals to the problems of their world. Authors will include Petrarch, Boccaccio, Machiavelli, Erasmus, Montaigne, Marlowe, Shakespeare, and Milton. Spring term: reading of such representative novelists as Fielding, Goethe, Stendhal, Dostoevsky, and Sartre; and such representative dramatists as Byron, Ibsen, Chekhov, Shaw, and Ionesco. Emphasis will be on literary technique and the evolution, from the Romantic period, of modern attitudes toward individualism.

[359 Humanism and the Renaissance Not offered in 1974-75.]

363-364 The European Novel Credit four hours a term. 363 fall term only. M W F 12:20. J. R. McConkey. 364 spring term only. M W F 12:20. B. S. Pedersen.

Fall: readings of selected novels, romances, and autobiographical prose from 400 A.D. through the early nineteenth century. A typical listing of books to be read would include *The Confessions of Augustine*, *Tristan and Iseult*, *Don Quixote* (both volumes), *Candide*, *Les Liaisons dangereuses*, *The Sorrows of Young Werther*, and *The Charterhouse of Parma*. Though each work will be considered as an entity, certain recurrent themes provide a focus for the course, the most important being the effect of visionary insights upon the individual—a matter which brings up questions of personal identity, human meaning, and the seeming similarity between creative and destructive impulses. Students will be asked to

keep a journal of their responses to the readings. Spring: the modern novel from Flaubert to Beckett. This course will discuss texts from the mid-nineteenth century to the present by such writers as Flaubert, Dostoevsky, Proust, Mann, Nabokov, and Beckett. Themes to be developed during the semester include: realism and its breakdown, the criticism of the Novel (or of Literature) as an integral part of the novel itself, versions of irony and the grotesque, relations to society and history.

373 The Nineteenth-Century Historical Novel: Temporal and Spatial Metaphors (also Italian 386) Spring term. Credit four hours. T Th 10:10-11:25. A. V. Grossvogel.

Readings and analysis of *The Betrothed*, *The Charterhouse of Parma*, *The Castle of Fratta*, *The Leopard*. The course will focus on the subtle interplay of the dislocation of time and of space as a distancing device in the narratives of Manzoni, Stendhal, Nievo, and Lampedusa.

376 The Romantic Movement (also Italian 389) Fall term. Credit four hours. M W F 10:10. A. V. Grossvogel.

Messages and messengers across the Alps. The influence of politics, poetics, polemics to define the character of Italian Romanticism. Readings from Vico, Alfieri, Foscolo, Leopardi, Manzoni, and also Di Breme, Visconti, Borsieri, Berchet, Mazzini, Pellico.

[391-392 Readings in Modern Poetry Credit four hours a term. Not offered in 1974-75.]

393 Gamblers, Engineers, and "Bricoleurs" in Contemporary Italian Fiction (also Italian 395) Fall term. Credit four hours. M W 1:25-2:40. A. V. Grossvogel.

An attempt to read in translation the narrative of Gadda, Landolfi, Calvino, Fruttero-Lucentini.

[411 Studies in the Lyric: Dante, Scève, Yeats Credit four hours. Not offered in 1974-75.]

413 The Detective Story: Form and Function Spring term. Credit four hours. Th 3-5. R. R. Roopnaraine.

The aims of the course will be threefold: (1) to trace the evolution of the genre from Poe to Borges; (2) to identify, through intensive analyses of representative texts, the formal procedures of the genre: thematic and narrative patterns, the function of setting, the conception of the detective; (3) to gauge the significance of the genre as a vital form of popular culture. Authors to be chosen from among the following: Poe, Wilkie Collins, Chesterton, Conan Doyle, Dashiell Hammett, Raymond Chandler, Rex Stout, Ross McDonald, Simenon, Dorothy Sayers, Agatha Christie, Robbe-Grillet, Borges.

414 The Novella in World Literature Spring term. Credit four hours. M W 1:25-2:40. W. W. Holdheim.

The art of the novella from Boccaccio to the twentieth century. Readings will among others include works of Cervantes, Hoffmann, Kliest, Poe, Melville, Pushkin, Mérimée, Maupassant, Kafka, Borges, and Pirandello. The theory of the novella and the genre's relation to other short narrative forms.

415 Prose Framing Poetry (also Italian 486)

Spring term. Credit four hours. T 2:30-4:30. A. V. Grossvogel.

Blake, Foscolo, Leopardi, Nerval. Examination of the different functions of the explicit or implicit use of prose to define, oppose, distance, complete the lyric moment. Reading knowledge of Italian or French required.

416 Don Juan and Faust Fall term. Credit four hours. Open to both undergraduate and graduate students. M W F 10:10. E. Blackall.

A study of various literary treatments of these two similar and contrasting figures whose entry into literature was roughly contemporaneous. Some treatments of the Faust figure to be considered will be those by Marlowe, Goethe, Heine, Thomas Mann, and Valéry; of the Don Juans, those of Tirso de Molina, Molière, Mozart, Byron, and Shaw. The foreign texts may be read in translation, but those students who can will be encouraged to read them in the original.

417 James Joyce and the European Tradition

Spring term. Credit four hours. M 3-5. W. J. Kennedy.

A careful study of *Ulysses* from the point of view of its relationship to continental European texts from the Classical, medieval, Renaissance, and modern periods with particular reference to Homer, Dante, Rabelais, Ibsen, and Svevo.

419-420 Independent Study Credit and hours to be arranged. Staff.

424 Italy and the Transalpine Renaissance: Ariosto, Spenser, and Rabelais Fall term. Credit four hours. W 2:45-4:45. W. J. Kennedy.

The impact of Italian literature upon English and French literature of the sixteenth century studied through the interrelationships among the *Orlando Furioso*, *The Faerie Queene*, and *Gargantua and Pantagruel*.

429 Readings in the New Testament Fall term. Credit four hours. T Th 2:30-3:45. J. P. Bishop.

Close readings of representative texts from the New Testament in modern scholarly editions, with the help of appropriate commentary, introductory and specialized. In 1974 the focus of attention will be on Acts, the Epistles of Paul, and the Gospel of John. All readings will be in English, but some reference to the Greek original will be possible and any degree of preparation in that language should prove advantageous. A steady interest in the material and upper-division standing are the only prerequisites. Students in other fields and colleges especially should not feel

inhibited from enrolling. The approach will be chiefly academic and literary but with the hope of staying open to scholarly and religious issues alike.

[435 Ancient and Renaissance Literary Criticism]

Spring term. Credit four hours. B. L. Hathaway. Not offered in 1974-75.]

[441 The Other World in Medieval Romance]

Spring term. Credit four hours. T. D. Hill. Not offered in 1974-75.]

446 Allegory and Symbolism Fall term. Credit four hours. M W F 10:10. C. Kaske.

Definitions and models drawn from the *Divine Comedy* will be related to a reading of works ranging from classical to modern: the myths of Plato, the *Romance of the Rose*, mystical lyrics of St. John of the Cross, selections from *The Faerie Queene*, and *Faust*, part II.

[449 Medieval Arthurian Literature]

Spring term. Credit four hours. W. Wetherbee. Not offered in 1974-75.]

[451 Poetic Traditions of the Renaissance]

Spring term. Credit four hours. W. J. Kennedy. Not offered in 1974-75.]

[456 Utopias and Imaginary Voyages From the Renaissance to the Enlightenment]

Fall term. Credit four hours. W. J. Kennedy. Not offered in 1974-75.]

[458 Petrarch, Ronsard, and Donne]

Spring term. Credit four hours. W. J. Kennedy. Not offered in 1974-75.]

[459 Nature and Norms in Renaissance and Baroque Literature]

Spring term. Credit four hours. W. J. Kennedy. Not offered in 1974-75.]

463 The Picaresque Novel (also Spanish 455)

Fall term. Credit four hours. Prerequisite: consent of the instructor. W 2:30-4:30. R. González.

A detailed study of the picaresque novel in Europe from its Spanish models in the sixteenth century to Lesage and Fielding. Readings will include *Lazarillo de Tormes*, Mateo Alemán's *Guzmán de Alfarache*, Quevedo's *Buscón*, and Grimmelshausen's *Simplicissimus*. Discussion devoted to critical controversies about the picaresque, the concept of realism, the development of the novel, the feminine picaresque, and early manifestations of the picaresque in Latin America. Readings in English and in the original. Class conducted in English.

[466 The Late Eighteenth Century]

Spring term. Credit four hours. N. Hertz. Not offered in 1974-75.]

[468 Three Novelists: Cervantes, Rabelais, Sterne]

Spring term. Credit four hours. R. R. Roopnaraine. Not offered in 1974-75.]

[469 **The History of the Book** Spring term. Credit four hours. D. D. Eddy and H. P. Kahn. Not offered in 1974-75.]

[472 **Ibsen and Strindberg (also Theatre Arts 442)** Fall term. Credit four hours. M. A. Carlson. Not offered in 1974-75.]

[473 **Autobiography as a Literary Form** Spring term. Credit four hours. W. W. Holdheim. Not offered in 1974-75.]

[478 **Kierkegaard and Nietzsche** Fall term. Credit four hours. B. S. Pedersen. Not offered in 1974-75.]

479 **Fiction and the Irrational** Fall term. Credit four hours. Mainly for upper-class students. Enrollment limited to twelve. W 2-4. E. Rosenberg.

Intensive study of six or seven novels and novellas, including Dostoevsky's *The Devils*, Tolstoy's *Kreutzer Sonata*, Flaubert's *Madame Bovary*, DeQuincey's *Confessions of an English Opium Eater*, and Mann's *Death in Venice*. Short papers and reports.

[483 **The Historical Novel** Fall term. Credit four hours. W. W. Holdheim. Not offered in 1974-75.]

[491 **Modernism in American and Russian Poetry** Fall term. Credit four hours. E. G. Fogel. Not offered in 1974-75.]

[493 **Modern Variations of the Picaresque Novel** Spring term. Credit four hours. R. R. Roopnaraine. Not offered in 1974-75.]

[498 **Dostoevsky, Mann, and Glide** Fall term. Credit four hours. W. W. Holdheim. Not offered in 1974-75.]

499 **Origins of the Avant-Garde** Spring term. Credit four hours. M 2:30-4:15; W 2:30-3:20. P. J. Carden.

Topic for 1975: encyclopedic works. An examination of the attempt by modernist authors to create a work which is an independent universe. An introduction to theories of modernism in the arts followed by discussion of representative works: Joyce's *Ulysses*, Biely's *St. Petersburg*, Pound's *Cantos*, and others. Comparison of similar phenomena in other arts to the extent that there is class interest.

[619 **Myth and Literature** Spring term. Credit four hours. B. S. Pedersen. Not offered in 1974-75.]

665 **Aesthetic Theory and Text in the Eighteenth Century (also German Literature 665)** Fall term. Credit four hours. M 1:25-3:20. S. L. Gilman.

A close reading of a series of aesthetic theories (Burke, Lessing, Diderot, Mendelssohn, Schiller, Jean Paul) paralleled by readings in prose works of the period dealing with aesthetic questions (Wieland, Diderot, Goethe).

681 **Baudelaire** Spring term. Credit four hours. Prerequisites: reading knowledge of French and consent of instructor. T 3-5. R. R. Roopnaraine.

An investigation of Baudelaire's poetic theory and practice based on an intensive study of *Les Fleurs du mal*, *Les Petits Poèmes en prose*, *Les Paradis artificiels*, *Les Curiosités esthétiques*, *Les Journaux Intimes*, and other occasional pieces. The course will also examine, through a study of key critical texts, the development of the critical attitudes to Baudelaire from the late nineteenth century to the present.

[684 **Theories of Interpretation: the Marxist Perspective** Fall term. Credit four hours. R. R. Roopnaraine. Not offered in 1974-75.]

[685 **Theory of the Novel** Spring term. Credit four hours. W. W. Holdheim. Not offered in 1974-75.]

688 **Three Novelists: Dickens, Balzac, and Mann** Spring term. Credit four hours. Graduate students and qualified upper-class students. Enrollment limited to twelve. W 3-5. E. Rosenberg.

Investigation of one or two of the long dominant fictions by each of the three novelists (*Bleak House* or *Little Dorrit*; the Rubempré cycle; *Buddenbrooks* or *The Magic Mountain*) and a few of the shorter pieces (*Eugénie Grandet*, *Cousin Pons*, Mann's early novellas).

689 **Flaubert and Sartre (also History 672)** Fall term. Credit four hours. Permission of the instructors required. W 2:30-4:30. D. LaCapra and R. Roopnaraine.

A study of the aesthetic and philosophical implications of Sartre's relationship to Flaubert. Readings include: *Madame Bovary*, *L'Education sentimentale*, *Bouvard et Pécuchet*, selected letters from *Correspondance*; *La Nausée*, *Qu'est-ce que la littérature*, *Question de méthode*, *Idiot de la famille*. Reading knowledge of French desirable; texts may also be read in translation.

[693 **Modern Parody** Spring term. Credit four hours. B. S. Pedersen. Not offered in 1974-75.]

698 **Topics in Modern Literature: Literature and History** Fall term. Credit four hours. T 2:45-4:45. W. W. Holdheim.

The fundamental problem of the interrelation between the historical and the aesthetic as it emerges in some modern trends in literary theory and criticism. The triumph of philology (Spitzer and Auerbach). The formalist contribution (Mukarovsky). Hermeneutics and the aesthetics of reception (Gadamer, Jauss).

699 **Topics in Modern Literature: From Formalism to Structuralism** Spring term. Credit four hours. W 3-5. B. S. Pedersen.

A reading and discussion of critical theoretical texts by Tynjanov, Eichenbaum, Shklovsky, Todorov, Barthes, Foucault, Kristeva, N. Frye, and others. Questions and problems to be considered in this course include: the status of a critical discourse—its strategies, values, and limits. Notions of form and

structure. The dependence upon linguistic models and the gradual problematization of the concept of the sign. Reading knowledge of French and/or German required.

[749-750 Special Topics in Medieval Studies

Throughout the year. Credit four hours a term. Staff. Not offered in 1974-75.]

Chinese Philosophical Literature (Asian Studies 371)

Chinese Imaginative Literature (Asian Studies 372)

Japanese Poetry and Drama (Asian Studies 375)

Modern Japanese Fiction (Asian Studies 376)

Southeast Asian Literature in Translation (Asian Studies 379)

Japanese Nô Theatre (Asian Studies 402)

Graduate Seminar in Renaissance Literature (English 721)

Old Icelandic Family Sagas in English Translation (German Literature 322)

Topics in German Literature II: The Weimar Republic (German Literature 414)

Ideology and Fiction in Eighteenth-Century Narrative (French 386)

Dante: La Divina Commedia (Italian 327-328)

Fictions of Self and the Languages of History (Romance Studies 391)

Russian Literature (Russian 207)

Russian Literature (Russian 208)

Autobiography in Russian Literature (Russian 322)

Russian Theatre and Drama (Russian 332)

Society and Literature (Russian 336)

The Russian Novel in Translation (Russian 367)

Seminar on the Interpretation of Eighteenth-Century Literature (Society for the Humanities 415-416)

Seminar on Narrative Typology (Society for the Humanities 419)

Seminar on Medieval Narrative (Society for the Humanities 420)

Twentieth-Century Poetry in America and Russia (Society for the Humanities 427-428)

Computer Science

G. Salton, chairman; G. Andrews, R. L. Constable, R. W. Conway, A. Demers, J. E. Dennis, Jr., D. Gries, S. P. Han, J. Hartmanis, J. E. Hopcroft, D. Kirkpa-

trick, L. T. Kou, W. L. Maxwell, C. G. Moore, J. Moré, C. Pottle, R. Teitelbaum, J. H. Williams

At Cornell, computer science is concerned with fundamental knowledge in automata, computability, and programming languages and systems programming, as well as with subjects such as numerical analysis and information processing which underlie broad areas of computer applications. Because of the wide implications of research in the field, the Department of Computer Science is organized as an intercollege department in the College of Arts and Sciences and the College of Engineering.

Even though there is as yet no formal undergraduate major in computer science, the Department offers a comprehensive set of undergraduate and graduate courses from which students can select the appropriate sequences to fit their major interests.

It is possible to take a strong computer science minor through the Mathematics Department (option II), or to choose an independent major including computer science, which must include at least as much mathematics as the option II mathematics major, and must be approved by the Independent Major Board which oversees such projects. Small amounts of computer science may be used as part of an independent major with substantial work in other fields—as in the case of a sociology student who wants to learn to use computers. Students interested in a one-course survey of computers and their application should take 101. Course 211 is a foundations course in computers and programming which leads to more advanced courses in computer science. Course 102 is intended for students whose sole interest is in learning a high level language, such as FORTRAN IV or PL/I.

Students who intend to have a strong minor in computer science should take the following courses: 211, 280, 314, 410, and two out of 321, 322, 481, 482, 611.

Students at Cornell are urged to take as many computer science courses as possible to acquaint themselves with this new science and prepare themselves to use it in their fields of study. Members of the Department are available to discuss with students the appropriate courses for their levels of ability and interest.

The complete six-digit course numbers for the computer science courses are listed in the *Engineering Announcements*.

Introductory courses: 100, 101, 102, 104 and 106 are related and coordinated courses intended to be taken during the same term. By selecting from this group of unit courses a student can assemble a three- or four-credit introduction to programming that is appropriate for his or her particular interests.

100 Introduction to PL/I Programming Either term. Credit two hours. Lectures T Th 9:05 or T Th 11:15, first eight weeks of term only. No scheduled recitation or laboratory, but optional recitation offered

M Th 3:35. Four evening quizzes M or Th 7:30. Individual laboratory work on computer.

An elementary presentation of computer programming, using the PL/I language. No previous programming experience is assumed. Problem analysis, program design, and program testing are emphasized. The presentation is essentially nonmathematical, and can serve as a basis for programming of either numeric or nonnumeric applications.

101 Implications of Computer Technology Either term. Credit one hour. Prerequisite: previous or concurrent registration in Computer Science 100 or equivalent. Lectures T Th 9:05, weeks nine through fourteen only. Two evening quizzes M or Th 7:30. Individual laboratory work on computer.

Intended as a continuation of 100. Overview of computer capability and applications. Discussion of implications of computer technology on society.

102 Introduction to FORTRAN Programming Either term. Credit one hour. Prerequisite: previous or concurrent registration in Computer Science 100 or equivalent. Lecture T 11:15, weeks nine through fourteen only. Two evening quizzes M or Th 7:30. Individual laboratory work on computer.

Intended as a continuation of 100. Introduction to programming in FORTRAN IV. Material will be directly related to 100, but using the FORTRAN language rather than PL/I.

104 Introduction to APL Programming Either term. Credit one hour. Prerequisite: previous or concurrent registration in Computer Science 100 or equivalent. Lectures M W F 2:30, weeks five through eight only. Two evening quizzes M or Th 7:30. Individual laboratory work on computer.

Intended as a continuation of 100. Introduction to interactive programming using the APL system. Assumes no previous knowledge of APL but the student is expected to understand basic programming concepts (variables, arrays, assignment, control) from 100 or equivalent.

106 Computer Solution of Mathematical Problems Either term. Credit one hour. Prerequisite: previous or concurrent registration in Computer Science 100 or equivalent. Lecture Th 9:05 or 11:15, weeks nine through fourteen only. Two evening quizzes M or Th 7:30. Individual laboratory work on computer.

Intended as a continuation of 100. An introduction to numerical computation. Topics are floating point representation, errors, and significance; approximations and library functions; typical algorithms for simultaneous equations and quadrature.

105 The Computerized Society Fall term. Credit three hours. T Th 1:25.

A seminar-style course designed to bring the perspectives of the sciences, social sciences, and humanities to the question of the impact of computers on society. Students with varied backgrounds are en-

couraged to enroll. The present-day influences of computers on human life and the future alternatives in the application of computers to society will be considered. Specific topics include: the potentialities and limitations of the computer—the popular view versus the computer scientist's view; man and the machine—the identity crisis; human privacy and the national data banks; human decision making versus military and industrial automation; the knowledge explosion and information-retrieval systems; technological and occupational obsolescence—what price for progress; social structure in the year 2000.

211 Computers and Programming Either term. Credit three hours. Prerequisite: Computer Science 100 or equivalent programming experience. M W 9:05 or T Th 10:10. Laboratory, M T W Th or F 2:30-4:25.

Intended as a foundations course in computer programming. Algorithms and their relation to computers and programs. Analysis of algorithms in terms of space and time requirements. A procedure-oriented language: specification of syntax and semantics, data types and structures, statement types, input-output, program structure. A brief introduction to machine organization. Programming and debugging problems on a computer are an essential part of this course.

280 Discrete Structures Fall term. Credit three hours. Prerequisite: Computer Science 101 or 211. M W F 1:25.

Fundamental mathematical concepts relevant to computer science. Set algebra, mappings, relations, partial ordering, equivalence relations, congruences. Operations on a set, groups, semigroups, rings and lattices, isomorphism and homomorphism, applications to automata and formal languages. Boolean algebra, applications to switching theory and decision tables. Directed and undirected graphs, subgraphs, chains, circuits, paths, cycles, graph isomorphism, application to syntactic analysis, and computer program analysis.

314 Introduction to Computer Systems and Organization Either term. Credit four hours. Prerequisite: Computer Science 211 or equivalent programming experience. T Th 11:15. Laboratory, M T W Th or F 2:30-4:25.

Characteristics and structure of digital computers as hardware units. Representation of data, addressing of data, index registers, indirect and base-plus-displacement addressing. Codes for error detection and corrections. Introduction to computer microstructure, gates, flip-flops, adders. Storage and peripheral hardware and their characteristics, the input-output channel, interrupts. Assembly language programming; format and basic instructions, the assembly process, loops and indexing, data types, subroutines, macros. Brief description of operating systems, loaders, interpreters, and compilers. Programming and debugging assembly language programs on a computer are an essential part of this course.

321-322 Introduction to Numerical Analysis

Throughout the year. Credit four hours a term. Prerequisites: Mathematics 222 or 294 and knowledge of a programming language such as FORTRAN, ALGOL, of PL/I. M W F 9:05.

Emphasis on algorithms appropriate for use with computers. Students solve representative problems on the computer by programming these algorithms. Numerical methods for solving systems of linear equations and calculating eigenvalues and eigenvectors. Interpolation, differentiation, least squares, and Chebyshev solution to discrete and continuous systems, and integration. Numerical solution of ordinary and partial differential equations. Solution of nonlinear equations in several variables.

410 Data Structures Either term. Credit four hours. Prerequisite: Computer Science 314 or the equivalent. Fall term, T Th 9:05, W 2:30. Spring term, M W F 9:05.

Data structures, relations between data elements and operations upon data structures. Lists, trees, graphs, and other forms of data structures. List operations including linear lists, circular lists, arrays, orthogonal lists, and multilinked structures. Binary tree representation, tree traversal, infinity lemma, tree enumeration. Lists and garbage collection. Dynamic storage allocation. Search and sorting techniques.

[414 Advanced Computer Programming] Spring term. Credit four hours. Prerequisite: Computer Science 314 or consent of the instructor. T Th 1:25, F 2:30. Not offered in 1974-75.]

435 Information Organization and Retrieval

Spring term. Credit four hours. Prerequisite: Computer Science 314 or the equivalent. T Th 2:30.

Introduction to information retrieval. File organization and search algorithms. Statistical analysis and automatic classification of information. Structural language analysis. Dictionary techniques. Interactive retrieval. Question and answering and data base retrieval. Evaluation of retrieval effectiveness.

481-482 Introduction to Theory of Computing I, II

Throughout the year. Credit four hours a term. Prerequisite: Computer Science 211, 280, or equivalent mathematics, or consent of instructor. M W F 11:15.

The course introduces the student to modern theory of computing by covering the major results from automata theory, formal languages, effective computability, computational complexity, and analysis of algorithms. The course covers such topics as definition of abstract computing models which include finite automata, push-down automata, Turing machines, random access machines; their relation to formal languages and effective computability (regular sets, context-free languages, parsing algorithms, recursively enumerable sets, and others) and unsolvable problems related to these models including: the halting problem, equivalence and ambiguity problems for languages, Rice's theorem, and others. Analysis of algorithms are discussed for random access ma-

chines with various measures of complexity. Included are: data structures such as heaps, priority queues, balance trees, and others; applications of depth first search to graph algorithms such as bioconnectivity and strong connectivity; sorting, recursion, dynamic programming and introduction to reducibilities.

Graduate Courses

For complete descriptions of courses numbered 600 or above see the *Announcement of the Graduate School: Course Descriptions*. If a course is not included there, consult the graduate field representative.

611 Programming Languages Fall term. Credit four hours. Prerequisite: Computer Science 314 or consent of the instructor. M W F 10:10.

An introduction to the structure of programming languages. Specification of syntax and semantics. Properties of algorithmic, list processing, string manipulation, and simulation languages: basic data types and structures, operations on data, statement types, and program structure. Macrolanguages and their implementation. Run-time representation of programs and data. Storage management techniques.

612 Translator Writing Spring term. Credit four hours. Prerequisite: Computer Science 611 or consent of the instructor. M W F 1:25.

Discussion of the models and techniques used in the design and implementation of assemblers, interpreters, and compilers. Topics include lexical analysis in translators, compilation of arithmetic expressions and simple statements, specification of syntax, algorithms for syntactic analysis, code generation and optimization techniques, bootstrapping methods, compiler-compiler systems.

613 Systems Programming and Operating Systems Fall term. Credit four hours. Prerequisite: Computer Science 410 or consent of the instructor. M W F 1:25.

The organization and software components of modern operating systems. Batch processing systems: loaders, input-output methods. Cooperating sequential processes: parallel programming, synchronization techniques. Introduction to multiprogrammed systems: the "process" model, virtual machines. Storage management: relocation, protection, allocation. Procedure and data sharing. Process scheduling and control. General resource management. File systems: logical and physical organization, protection. Case studies. Additional topics such as systems simulation, job control languages, and microprogramming. Projects involving the design and implementation of systems modules.

[615 Machine Organization] Spring term. Credit four hours. Prerequisite: Computer Science 314 or consent of the instructor. M W F 2:30. Not offered in 1974-75.]

[616 Operations Research Models for Computer and Programming Systems] Spring term. Credit four hours. Prerequisites: Computer Science 611 and a course in probability (e.g., Mathematics 371 or Engineering IOD660.), or consent of the instructor. T Th 10:10, occasionally W 2:30. Not offered in 1974-75.]

[618 Picture Processing] Spring term. Credit four hours. Prerequisite: Computer Science 611 or consent of the instructor. M W F 10:10. Not offered in 1974-75.]

621-622 Numerical Analysis Throughout the year. Credit four hours a term. Prerequisites: Mathematics 411 and knowledge of a programming language such as FORTRAN, ALGOL or PL/I, or consent of the instructor. M W F 9:05.

A more thorough treatment of the material of 321-322, and at a faster pace. Additional topics will be covered. Emphasis on algorithms appropriate for use with computers.

632 File Processing (g) Spring. Credit four hours. Prerequisite: Computer Science 211 or 410 is desirable. T Th 1:25-2:40.

Concerned with the practical problems of processing large sets of structured data. Topics include problems of file organization, searching, sorting, security, recovery, concurrency. Discussion of languages and operating system services for file processing. Concerned also with techniques for design and programming of large, long-lived, often-changed, and highly-reliable systems.

635 Special Topics In Information Retrieval Fall term. Credit four hours. Prerequisite: graduate standing or Computer Science 410 and consent of instructor. T 2:30-4:30.

Topics in the theories of indexing and classification. Use of algebraic and probabilistic models for the analysis of storage organizations and retrieval processes.

[641 Mathematical Symbol Manipulation] Spring term. Credit four hours. Prerequisites: Computer Science 410 and some knowledge of discrete mathematics, e.g., Computer Science 280, 481, or Mathematics 431. Not offered in 1974-75.]

681 Theory of Algorithms and Computing I Fall term. Credit four hours. Prerequisite: Computer Science 482 or consent of the instructor. M W F 2:30.

An advanced treatment of topics related to 482, including computational models for random access machines, measures of complexity, analysis of algorithms, arithmetic complexity, lower bounds on complexity of practical problems, reducibilities, and polynomial complete problems. Algorithms discussed include fast Fourier transform, integer and polynomial arithmetic, evaluation and interpolation. Extremal problems in graph theory, and planarity and triconnectivity.

682 Theory of Algorithms and Computing II Spring term. Credit four hours. Prerequisite: Computer Science 481 or consent of the instructor. M W F 2:30.

An advanced treatment of topics related to Computer Science 481, such as axiomatic treatment of computability and computational complexity, including proofs from the axioms of certain theorems such as Rice's theorem, the speed-up theorems, and hierarchy theorems. Also an abstract account of formal languages (AFL's, principal AFL's, and others) and algorithmic languages (program schemata, subrecursive languages, and others). At the instructor's discretion the course will include such topics as structure of the polynomial degrees, universal schemata classes, Grzegorzczuk hierarchy, equivalents of the LBA problem, classes of intractable problems, correctness of recursion rules, assignment of meaning to programs, natural unsolvable problems (word problems, Hilbert's 10th Problem, equivalence of schemata, and others), investigations of time-space trade-off (Savitch languages, Cook's class, and others).

709 Computer Science Graduate Seminar Either term. Credit one hour. Primarily for graduate students. Th 4:30-6. Staff, visitors, and students.

712 Theoretical Aspects of Compiler Construction Spring term. Credit four hours. Prerequisites: Computer Science 612 and 481. T Th 10:10.

Formal methods of syntactic analysis including precedence, bounded context, and LR techniques. General parsing methods and their time-space complexity. Noncanonical parsing techniques. Two-level grammars. Formal methods of object code optimization.

719 Seminar in Programming Either term. Credit four hours. Prerequisite: Computer Science 611 or consent of the instructor. Th 2:30.

[721 Solutions of Nonlinear Equations and Nonlinear Optimization Problems] Fall term. Credit four hours. Prerequisite: Computer Science 622 or consent of the instructor. Not offered in 1974-75.]

723 Numerical Solution of Ordinary Differential Equations and Integral Equations Fall term. Credit four hours. Prerequisite: Computer Science 622 or consent of the instructor. Hours to be arranged.

Solution of nonlinear initial and boundary value problems: single and multistep methods, predictor-corrector and extrapolation methods; stability, order, consistency, and convergence; special methods for special problems and in particular stiff equations. Solution of Volterra and Fredholm integral equations: finite difference and iterative methods.

[725 Numerical Solution of Partial Differential Equation] Spring term. Credit four hours. Prerequisite: Computer Science 622 or consent of the instructor. Not offered in 1974-75.]

727 Introduction to Approximation Theory

Spring term. Credit four hours. Prerequisite: Computer Science 622 or consent of the instructor. Hours to be arranged.

Topics include algorithms for best uniform, L^1 and L^2 approximation by polynomials and rational functions in both the discrete and continuous case, approximation by splines and related applications, and the construction of subroutines for the evaluation of functions.

729 Seminar in Numerical Analysis Either term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged.

733 Selected Topics in Information Processing Same as Operations Research IOE789, College of Engineering.

734 Seminar in File Processing Fall term. Prerequisite: Computer Science 733. Credit and hours to be arranged.

739 Seminar in Information Organization and Retrieval Spring term. Credit four hours. Prerequisite: Computer Science 435. Hours to be arranged.

781 Advanced Theory of Computing Fall term of odd numbered years (1975, 1977, etc.). Credit four hours. Prerequisite: Computer Science 682 or consent of the instructor. M W F 10:10.

At the instructor's discretion advanced results in automata theory, computability, and computational complexity. Topics may include: noneffectiveness of speed up; honest naming theorem for complexity classes; definition of operator complexity and reducibility classes; comparison of the power of programming languages; relationship between algorithmic languages and formal theories; equivalence algorithms for multitape finite automata; the computational complexity of decision problems (Presburger, Tarski's algorithms, etc.); equivalents of the LBA problem (pebble automata, auxiliary pushdown automata).

782 Advanced Topics in Algorithms Spring term of odd numbered years (1975, 1977, etc.). Credit four hours. Prerequisite: Computer Science 682 or consent of the instructor. M W F 10:10.

At the instructor's discretion advanced results in analysis of algorithms. Topics may include: detailed analysis of complex algorithms; relationships between time and tape complexities; polynomial complete problems and reducibilities; complexity of decision problems, and recent results from the literature.

789 Seminar in Automata Theory Either term. Credit four hours. Prerequisite: consent of the instructor. W 3:35.

790 Special Investigations in Computer Science Either term. Prerequisite: consent of the registration officer of the department. Hours to be arranged.

Independent research.

890 Special Investigations in Computer Science

Either term. Prerequisite: consent of the registration officer of the department. Hours to be arranged.

Master's research.

990 Special Investigations in Computer Science

Either term. Prerequisite: consent of the registration officer of the department. Hours to be arranged.

Doctorate research.

Digital Systems Simulation (Industrial Engineering IOE 680, College of Engineering)

Switching Systems I (Electrical Engineering IEE 675, College of Engineering)

Switching Systems II (Electrical Engineering IEE 676, College of Engineering)

Economics

T. C. Liu, chairman; E. A. Blackstone, E. T. Burton, M. G. Clark, T. E. Davis, R. H. Frank, R. T. Freeman, W. Galenson, F. H. Golay, M. R. Haines, G. H. Hildebrand, J. G. B. Hutchins, W. Isard, A. E. Kahn, M. Majumdar, P. D. McClelland, D. C. Mueller, P. Pestieau, U. M. Possen, R. E. Schuler, S. M. Slutsky, G. J. Staller, W. E. Taylor, E. Thorbecke, S. C. Tsiang, J. Vanek, H. Y. Wan, Jr.

Students who wish to major in economics must have completed Economics 101-102 or its equivalent with an average of C or better. Students who have completed only one semester of the introductory course may be accepted as provisional majors provided their grade was at least C. Prospective majors should report to the Department of Economics office.

The requirements for a major are: (1) Economics 311 and 312; (2) twenty hours of other economics courses listed by the Department of Economics in this *Announcement*, except that, with the permission of the major adviser, two economics courses outside the College of Arts and Sciences may be used to fulfill this requirement; and (3) three courses above the introductory level in subjects related to economics selected with the approval of the major adviser from the offerings of the Departments of Anthropology, Asian Studies, Government, History, Mathematics, Philosophy, Psychology, and Sociology, and of the Center for International Studies.

In addition to the courses required for the major, many students will find it valuable to take statistics (the diverse possibilities include Agricultural Economics 310, Industrial and Labor Relations 210, Industrial Engineering 9170 and 9370, and Mathematics 370 and 371, 472, 475). Mathematics courses are not needed for an undergraduate major. However, students planning graduate work in eco-

nomics are strongly advised to take mathematics at least through calculus and linear algebra.

The Honors Program

Candidates for the degree of Bachelor of Arts with honors in economics will enroll in the Honors Seminars 390, 391, and 392. Candidates are expected to complete thirty-two hours of advanced courses in economics, including the Honors Seminars and all courses required of majors.

Students seeking admission to the Honors Program should consult their advisers and the professor in charge of the Program not later than the preregistration period in the fall of their junior year. Application will not normally be considered from students whose cumulative average is less than B- in both their general studies and their economics courses.

A comprehensive honors examination, both written and oral, will be given to candidates at the end of their senior year. Candidates may be exempted from final examinations in their other economics courses at the end of their senior year.

Honors Seminars 390 and 391 may be taken, with permission, by students not in the Honors Program courses required of majors.

Distribution Requirement

The distribution requirement in social sciences is satisfied in economics by Economics 101-102.

101 Introductory Economics Either term. Credit three hours. Lectures and an additional discussion section scheduled during the week. Fall term: M W 11:15, T Th 9:05, 11:15. R. T. Freeman, T. C. Liu, P. D. McClelland, and assistants. Spring term: T Th 11:15. E. T. Burton and assistants.

Analysis of aggregate economic activity in relation to the level, stability, and growth of national income. Topics discussed may include the determination and effects of unemployment, inflation, balance of payments deficits, and economic development, and how these may be influenced by monetary, fiscal, and other policies.

102 Introductory Economics Either term. Credit three hours. Lectures and an additional discussion section scheduled during the week. Fall term: M W 9:05. R. Frank and assistants. Spring term: M W 9:05, T Th 9:05, 10:10. R. E. Schuler, W. E. Taylor, H. Y. Wan, Jr., and assistants.

Explanation and evaluation of how the price system operates in determining what goods are produced, how goods are produced, and who received income, and how the price system is modified and influenced by private organizations and government policy. Topics discussed may include the determination of prices and wages, the influence of business monopolies and labor unions, comparative economic systems, and the arguments about government action

on such matters as poverty, pollution, and conservation.

General Courses

301 Economics of Market Failure Fall term. Credit four hours. Prerequisite: Economics 102. M W 4:15. E. A. Blackstone.

A study of the general situations in which the price system fails to achieve an optimal allocation of goods and services. The main kinds of market failures examined include externalities, inadequate information, and public goods. A number of specific kinds of market failures will be examined in detail. These may include pollution, health, education, national defense, congestion, transportation, etc.

302 The Impact and Control of Technological Change Spring term. Credit four hours. T Th 2:30-4. Staff.

Examines social, environmental, and economic implications of technological change in the United States in the context of possible policies and strategies of control. Several specific cases will be considered in detail followed by a broader investigation of the problems of a modern technological society. Alternative political-economic solutions will be explored. The course is interdisciplinary and relies on weekly guest speakers. Students will participate in a research project to develop a case study.

307 Economic Analysis of the Private Sector (also CEE 2201-2611, College of Engineering) Fall term. Credit four hours. Prerequisite: one year of college-level mathematics. T Th 10:10-11:25. R. E. Schuler.

Intended primarily for engineers, this course in microeconomics considers the behavior of individual households and firms; how individual agents combine under different market structures including competitive markets, monopoly, and monopsony; and concludes with the theory of distribution and general equilibrium. Most topics will receive both graphical and mathematical treatment.

308 Economic Analysis of Government (also CEE 2202-2612, College of Engineering) Spring term. Credit four hours. Prerequisites: one year of college-level mathematics and Economics 307 or 311. T Th 10:10-11:25. R. E. Schuler.

A continuation of Economics 307. Consideration of the welfare implications of various forms of economic organization and the rationale for government intervention in the microeconomy, and the theory underlying investment in government projects and environmental programs; followed by studies of national economic constraints and aggregate behavior (macroeconomics) together with the impact of government activity on these aggregates. Mathematical as well as graphical tools of analysis will be used.

309 Capitalism and Socialism (also Industrial and Labor Relations 347) Fall term. Credit four hours. Prerequisites: Economics 101 and 102. M W 1:25-2:40. G. H. Hildebrand.

Capitalism as a type of economic organization and as an idea system. Smith's view and Marx's critique. The achievements of capitalism. Some current issues: stability, inflation, monopoly, distribution, costs and growth, and industrial relations. Socialist criticisms. Types of socialist thought. Some problems of socialism; the place of the state and the question of scarcity. Central planning. Recent appraisals of capitalism and socialism: Schumpeter, von Mises, Sweezy, Pigou, Galbraith, and Friedman.

311 Intermediate Microeconomic Theory Either term. Credit four hours. Required of all students majoring in economics. Prerequisites: Economics 101 and 102 or consent of instructor. Fall term: M W F 9:05, M W 1:25-2:40, T Th 10:10-11:25, 1:25-2:40. E. T. Burton, S. M. Slutsky, H. Y. Wan, Jr., and staff. Spring term: M W F 11:15, T Th 1:25-2:40. W. E. Taylor and staff.

Analysis of the pricing processes in a private enterprise economy under varying competitive conditions, their role in the allocation of resources, and the functional distribution of national income.

312 Intermediate Macroeconomic Theory Either term. Credit four hours. Required of all students majoring in economics. Prerequisites: Economics 101 and 102 or the consent of the instructor. Fall term: M W F 11:15, M W 1:25-2:40. R. H. Frank and G. J. Staller. Spring term: M W F 9:05, 11:15, M W 1:25-2:40, T Th 1:25-2:40. E. T. Burton, M. R. Haines, S. M. Slutsky, and staff.

An introduction to the theory of national income determination and economic growth in alternative models of the national economy; the interaction and relation of aspects of these models of empirical aggregate economic analysis.

315 History of Economic Thought Fall term. Credit four hours. Hours to be arranged. Staff.

A survey of the development of economic thought from the early modern period to the early twentieth century. Emphasis is placed, although not exclusively, on English classical economic thought, but attention is paid to divergent and dissident schools, terminating with the work of Alfred Marshall. Students have the option of writing a term paper on an approved topic or of taking the final examination.

317 Intermediate Mathematical Economics I Fall term. Credit four hours. M W 1:25-2:40. M. Majumdar.

Introduction to calculus and menial algebra; problems of maximization of a function of several variables.

318 Intermediate Mathematical Economics II Spring term. Credit four hours. M W 1:25-2:40. M. Majumdar.

Advanced techniques of optimization and application to economic theory.

319-320 Quantitative Methods Throughout the year. Credit four hours a term. Prerequisite: good control of microeconomic and macroeconomic theory and some very elementary knowledge of calculus, linear algebra, and probability, or consent of the instructor. Fall term: M W F 10:10. W. E. Taylor. Spring term: T Th 10:10-11:25. R. Frank.

The application of quantitative analysis to the testing of economic theories largely at the macroeconomic level. This framework will provide a basis for the study and evaluation of cross-section and time-series data, methodology and theory of economic measurement, statistical techniques, empirical studies and economic forecasting.

Economic History

[321 Economic History of Ancient Medieval Europe] Fall term. Credit four hours. Open to upperclassmen with some background in economics or history, or with consent of the instructor. Not offered in 1974-75.]

322 Economic History of Modern Europe: 1750 to the Present Fall term. Credit four hours. Open to upperclassmen with some background in economics and/or history, or with consent of instructor. M W F 10:10. M. Haines.

Covers and analyzes the background, origins, and character of the industrialization and modernization of Europe since 1750. Topics to be covered will include the agricultural revolutions; the role of technology in historic economic change; the importance of trade, institutional and structural change; the social and demographic aspects of modernization; and the graphic diffusion of modern growth.

323 American Economic History Fall term. Credit four hours. Prerequisites: Economics 101 and 102, or consent of the instructor. T Th 3-4:15. P. D. McClelland.

A survey of the problems of development in the American economy from first settlement to early industrialization.

324 American Economic History Spring term. Credit four hours. Prerequisites: Economics 101 and 102, or consent of the instructor. M W 3-4:15. P. D. McClelland.

A survey of problems in American economic history from the Civil War to World War I.

325 Economic History of Latin America Fall term. Credit four hours. Open to upperclassmen with some background in economics or history, or with the consent of the instructor. M W F 10:10. T. E. Davis.

A survey emphasizing the processes and problems of economic growth and the evolution of economic institutions.

[327 The Environment of Economic Activity in Postwar Europe] Fall term. Credit four hours. Prerequisites: Economics 101 and 102 or the equivalent. Not offered in 1974-75.]

[329 Economic History of Early Modern Europe: ca. 1000-1750] Spring term. Credit four hours. Prerequisites: Economics 100 and 102 or the equivalent. Not offered in 1974-1975.]

Economic and Business History (Business and Public Administration 375) Fall term. Credit three hours. Limited to seniors who have completed Economics 101 and 102. M W F 9:05. J. Hutchins.

A study of the evolution of economic organization and of the role of the business firm therein. Although some attention is given to earlier times, the primary emphasis is on the period since 1750. The analysis of the development of business organization, administration, and policy proceeds, in part, by means of historical case studies. Attention is paid to the relations between business policies and the rise and fall of firms and industries, and to the interactions of business and public policies. The primary focus is on the United States, but European origins and developments are included when significant.

Money, Banking, and Public Finance

331 Money and Credit Fall term. Credit four hours. Prerequisites: Economics 101 and 102. M W F 11:15. U. M. Possen.

A systematic treatment of the determinants of the money supply and the volume of credit. Economic analysis of credit markets and financial institutions in the United States.

335 Public Finance: Resource Allocation Fall term. Credit four hours. Prerequisites: Economics 101 and 102. T Th 3-4:15.

Analysis of the role of government in allocating resources through taxes and expenditures. Criteria for evaluation will be developed and applied to specific policies. Attention will focus on the federal government.

[336 Collective Choice: Theory and Applications] Fall term. Credit four hours. Prerequisite: Economics 311 or equivalent, or consent of instructor. Not offered in 1974-75.]

338 Macroeconomic Policy Spring term. Credit four hours. Prerequisite: Economics 312. T Th 1:25-2:40. U. M. Possen.

A study of the use of fiscal and monetary policies for achieving full employment, price level stability, and appropriate economic growth.

Labor Economics

Economics of Wages and Employment (Industrial and Labor Relations 240) Either term. Credit three hours. Prerequisites: Economics 101 and 102 or equivalent. Fall term. M W F 9:05-11:15. Staff. Spring

term: hours and staff to be announced.

An introduction to the characteristics of the labor market and to analysis of wage and employment problems. Among topics studied are the composition of the labor force, job-seeking and employment practices, methods of wage determinations, theories of wages and employment, economic effects of unions, the nature and causes of unemployment, and programs to combat joblessness and poverty.

342 Economics and Problems of Labor (also Industrial and Labor Relations 343) Spring term. Credit four hours. Prerequisites: Economics 101 and 102. ILR 240 recommended. M W 1:25-2:40. G. H. Hildebrand.

An advanced course concerning the institutional organization of labor markets, economic analysis of their operation, and major policy questions involved. Principal topics include wage and employment theory, determinants of wage level and structure, technological change, unemployment, poverty and income distribution, inflation and incomes policy.

Organization, Performance, and Control of Industry

351 Industrial Organization Fall term. Credit four hours. Prerequisites: Economics 101 and 102. M W F 9:05. E. A. Blackstone.

An analysis of the prevalence and effectiveness of competition in the American economy centering on the structure, conduct, and performance of American industry. Structural characteristics to be discussed include concentration, economics of scale, product differentiation, and barriers to entry. Among the numerous aspects of business behavior to be examined will be merger decisions, pricing, advertising, and technological innovation policies. A number of case studies of American industries and firms will be read, and emphasis will be placed on relating the theories of monopoly, oligopoly, and competition to the histories of specific firms and industries.

352 Public Regulation of Business Spring term. Credit four hours. Prerequisite: Economics 351 or consent of the instructor. M W F 9:05. E. A. Blackstone.

A continuation of Economics 351, concentrating mainly on public policies of enforcing, supplementing, or replacing competition, with specific studies of selected industries and recent legal cases.

[354 Economics of Regulation] Spring term. Credit four hours. Not offered in 1974-75.]

Transportation: Rates and Regulations (Business and Public Administration 575) Fall term. Credit three hours. Limited to seniors who have taken Economics 101-102 or the equivalent. M W F 10:10. J. Hutchins.

A study of American transportation focused on economic organization, public policy, and the rate-making process. The emphasis is on the theory and

practice of rate making in an environment complicated by fixed, joint, and common costs, by competition among differing modes of transport, and by complex patterns of regulation.

Transportation: Organization, Administration, and Public Policies (Business and Public Administration 576) Spring term. Credit three hours. Limited to seniors who have completed Economics 101-102. M W F 10:10. J. Hutchins.

A continuation of Business and Public Administration 575 dealing with problems of organization, administration, and public policy in the various segments of transportation—merchant shipping, air transport, motor carrier transport, domestic water transport, and railroad reorganization. Cases are used to bring out some of the problems.

International and Comparative Economics

361 International Trade Theory and Policy Fall term. Credit four hours. Prerequisites: Economics 101 and 102 or consent of the instructor. M W F 9:05. R. Freeman.

Survey of the principles that have served as guides in the formulation of international trade and commercial policies. The evolution of the theory of international trade, principles and practices of commercial policy, problems of regional integration and customs unions, and institutions and practices of state trading.

362 International Monetary Theory and Policy Spring term. Credit four hours. Prerequisites: Economics 101 and 102 or consent of the instructor. M W F 11:15. R. Freeman.

Survey of the principles that have served as guides in the formulation of international financial policies. The evolution of the theory of balance of payments adjustment, international monetary standards, the nature of conflicts rising out of the relationship between domestic economic policies and external economic relations, international capital movements, economic aid, international monetary institutions, and proposals for international monetary reforms.

[364 The United States in the World Economy] Fall term. Credit four hours. Prerequisites: Economics 101 and 102 or consent of the instructor. Not offered in 1974-75.]

[365 Economic Policy and Development in Southeast Asia] Spring term. Credit four hours. Prerequisite: consent of the instructor. Not offered in 1974-75.]

[366 Introduction to the Japanese Economy] Spring term. Credit four hours. Not offered in 1974-75.]

367 Comparative Economic Systems: Soviet Union and Europe Fall term. Credit four hours. M W F 11:15. G. J. Staller.

Discussion of the rationality and feasibility of economic planning (von Mises, Hayek, Lange). Examination of the various approaches to planning, including discussion of the planning techniques in Europe, Yugoslavia, and the Soviet Union (with emphasis on the Soviet Union). Comparison of economic performance of various free and planned economies. Consideration of economic competition between the market and the planned systems.

368 Contemporary Brazil (also Sociology 368) Spring term. Credit four hours. Prerequisite: two courses in social sciences. T Th 1:25-3. T. E. Davis.

A study of the style of development in economy, polity, and society followed by contemporary Brazil, and an analysis of the contradictions that led to the military coup of 1964 and its aftermath; some comparisons with other Latin American countries will be made. Assigned readings will be in English.

[Comparative Economic Systems: Soviet Russia (Industrial and Labor Relations 344)] Spring term. Credit four hours. Prerequisites: Economics 101 and 102 or consent of the instructor. Not offered in 1974-75.]

Economic Growth and Development

371 Process of Economic Development Fall term. Credit four hours. T Th 10:10-11:25. E. Thorbecke.

The process of economic development in developing countries. Theories and explanations of the growth and development process. The role of the state in development planning. Strategies of economic and social development to achieve higher income growth, increased employment, and a more equitable income distribution.

372 Applied Economic Development Spring term. Credit four hours. T Th 10:10-11:25. E. Thorbecke.

Empirical study of the development process. Case studies of a few developing countries. The relationship between traditional and modern sectors in the growth process. Performance of developing countries with respect to income, employment, and income distribution.

378 Economics, Population, and Development Spring term. Credit four hours. M W F 10:10. M. Haines.

An introduction to the economic aspects of population and the interaction between population change and economic change. Particular attention will be paid to economic views of fertility, mortality, and migration, and to the impact of population growth on economic growth, development, and modernization.

382 Economics of Workers' Management in Yugoslavia Spring term. Credit four hours. Prerequisites: Economics 311 and 312 or consent of the instructor. Hours to be arranged. J. Vanek.

Examines the worker-managed economy of Yugoslavia. The organization and theoretical and practical implications of worker management will be studied in detail. Special attention will be given to the outcome of the decision-making process at the firm level of such a system, the consistency of these outcomes with the national plans, and the policies used to implement them.

Honors Program

390 Honors Seminar Spring term. Credit four hours. Required of all juniors who plan to be candidates for honors, and open to any qualified student who may be interested with no obligation to continue with 391. Hours and staff to be arranged.

Selected readings from books which have been significant in the development of economics.

391 Honors Seminar Fall term. Credit four hours. Required of all seniors who are candidates for honors, and open to any qualified student who may be interested with no obligation to continue with 392. Hours to be arranged. Staff.

Continuation of Economics 390.

392 Honors Seminar Spring term. Credit four hours. Required of all seniors who are candidates for honors. Hours to be arranged. Staff.

Continuation of 391 with the writing of an honors thesis and preparation for the comprehensive Honors examination.

399 Readings in Economics Throughout the year. Variable credit. Any member of the Department.

Graduate Courses and Seminars

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Course Descriptions*. If a course is not included there, consult the graduate field representative.

509 The Theory of Household and the Firm Fall term. Credit four hours. T Th 3-4:15. H. Y. Wan, Jr.

510 The Theory of Markets and General Equilibrium Spring term. Credit four hours. T Th 3-4:15. H. Y. Wan, Jr.

511 Microeconomic Theory Fall term. Credit four hours. T Th 3-4:15. S. M. Slutsky.

512 Macroeconomic Theory Spring term. Credit four hours. T Th 3-4:15. S. M. Slutsky.

513 Macroeconomic Theory: Static Income Determination Fall term. Credit four hours. M W 1:25-2:40. U. M. Possen.

514 Macroeconomic Theory: Dynamic Models, Growth, and Inflation Spring term. Credit four hours. T Th 1:25-2:40. R. Frank.

517-518 Intermediate Mathematical Economics Throughout the year. Credit four hours per term. M W 1:25-2:40. M. Majumdar.

519-520 Quantitative Methods Throughout the year. Credit four hours per term. Fall term: M W F 10:10. W. E. Taylor. Spring term: T Th 10:10-11:25. R. Frank.

[521 European Economic History Fall term. Credit four hours. Not offered in 1974-75.]

522 European Economic History Fall term. Credit four hours. M W F 10:10. M. Haines.

523-524 American Economic History Throughout the year. Credit four hours per term. Fall term: T Th 3-4:15. Spring term: M W 3-4:15. P. D. McClelland.

525 Economic History of Latin America Fall term. Credit four hours. M W F 10:10. T. E. Davis.

[527 The Environment of Economic Activity in Postwar Europe Fall term. Credit four hours. Not offered in 1974-75.]

[529 Economic History of Early Modern Europe Spring term. Credit four hours. Not offered in 1974-75.]

[536 Collective Choice: Theory and Applications Spring term. Credit four hours. Not offered in 1974-75.]

551 Industrial Organization Fall term. Credit four hours. M W F 9:05. E. A. Blackstone.

552 Public Regulation of Business Spring term. Credit four hours. M W F 9:05. E. A. Blackstone.

561 International Trade Theory and Policy Fall term. Credit four hours. Prerequisites: Economics 101 and 102 or consent of instructor. M W F 9:05. R. Freeman.

562 International Monetary Theory and Policy Spring term. Credit four hours. Prerequisites: Economics 101 and 102 or consent of the instructor. M W F 11:15. R. Freeman.

565 Economic Problems of Latin America Spring term. Credit four hours. Hours to be arranged. T. E. Davis.

[566 Introduction to the Japanese Economy Spring term. Credit four hours. Not offered in 1974-75.]

567 Comparative Economic Systems: Soviet Union and Europe Fall term. Credit four hours. M W F 11:15. G. J. Staller.

568 Contemporary Brazil Spring term. Credit four hours. T Th 1:25-3. T. E. Davis.

571 Process of Economic Development Fall term. Credit four hours. T Th 10:10-11:25. E. Thorbecke.

572 Applied Economic Development Spring term. Credit four hours. T Th 10:10-11:25. E. Thorbecke.

578 Economics, Population, and Development Spring term. Credit four hours. M W F 10:10. M. Haines.

582 Economics of Workers' Management in Yugoslavia Spring term. Credit four hours. Hours to be arranged. J. Vanek.

611 Advanced Microeconomic Theory Fall term. Credit four hours. Hours to be arranged. E. T. Burton.

612 Advanced Macroeconomic Theory Spring term. Credit four hours. Hours to be arranged. U. M. Possen.

[613 History of Economic Thought Fall term. Credit four hours. Not offered in 1974-75.]

617-618 Mathematical Economics Throughout the year. Credit four hours per term. Hours to be arranged. M. Majumdar.

619-620 Econometrics Throughout the year. Credit four hours per term. Hours to be arranged. Fall term: W. E. Taylor. Spring term: T. C. Liu.

[621-622 Seminar in Economic History Throughout the year. Credit four hours per term. Not offered in 1974-75.]

[623-624 American Economic History Fall term. Credit four hours for each course. Not offered in 1974-75.]

626 Methods in Economic History Spring term. Credit four hours. Hours to be arranged. P. D. McClelland.

631-632 Monetary Theory and Policy Throughout the year. Credit four hours per term. Hours to be arranged. S. C. Tsiang.

[635-636 Public Finance: Resource Allocation and Fiscal Policy Throughout the year. Credit four hours per term. Not offered 1974-75.]

638 Public Finance: Local Government and Urban Problems Fall term. Credit four hours. Hours to be arranged. R. E. Schuler.

[641-642 Labor Economics Throughout the year. Credit four hours per term. Not offered in 1974-75.]

648 Issues in Latin America Spring term. Credit four hours. Th 3:35-5:30. T. E. Davis.

651-652 Industrial Organization and Regulation Throughout the year. Credit four hours per term. Hours to be arranged. Fall term: Staff. Spring term: E. A. Blackstone.

661 International Economics: Pure Theory and Policy Fall term. Credit four hours. Hours to be arranged. J. Vanek.

[662 International Economics: Pure Theory and Policy Spring term. Credit four hours. Not offered in 1974-75.]

[663 International Economics: Balance of Payments and International Finance Fall term. Credit four hours. Not offered in 1974-75.]

664 International Economics: Balance of Payments and International Finance Spring term. Credit four hours. Hours to be arranged. R. T. Freeman.

670 Economic Demography and Development Fall term. Credit four hours. Hours to be arranged. M. Haines.

671-672 Economics of Development Throughout the year. Credit four hours per term. Hours to be arranged. Fall term: F. H. Golay. Spring term: E. Thorbecke.

[674 Economic Systems Spring term. Credit four hours. Not offered in 1974-75.]

[675 Growth and Development Not offered in 1974-75.]

[677 Topics in Economic Growth and Development Not offered in 1974-75.]

[678 Economic Growth in Southeast Asia Spring term. Credit four hours. Not offered in 1974-75.]

679 Theory of Quantitative Economic Policy Applied to Development Fall term. Credit four hours. Hours to be arranged. E. Thorbecke.

681 Economics of Participation and Labor-Managed Systems: Theory Fall term. Credit four hours. Hours to be arranged. J. Vanek.

682 The Practice and Implementation of Self-Management Spring term. Credit four hours. Hours to be arranged. J. Vanek.

684 Seminars in Advanced Economics Spring term. Credit four hours. Hours to be arranged. S. C. Tsiang.

Location Theory (Policy Planning and Regional Analysis 715, College of Architecture, Art, and Planning)

Methods of Regional Analysis (Policy Planning and Regional Analysis 733, College of Architecture, Art, and Planning)

English

B. B. Adams, chairman; M. H. Abrams, A. R. Ammons, J. P. Bishop, J. F. Blackall, M. R. Brownell, S. Budick, A. Caputi, M. J. Colacurcio, D. D. Eddy, R. H. Elias, S. B. Elledge, A. V. Ettin, R. T. Farrell, E. G. Fogel, A. Goldbarth, P. A. Gottschalk, W. J. Harris,

B. L. Hathaway, N. H. Hertz, T. D. Hill, K. Hume, R. D. Hume, T. L. Jeffers, C. Kaske, R. E. Kaske, H. Kaye, C. S. Levy, A. Lurie, P. L. Marcus, D. E. McCall, J. R. McConkey, H. S. McMillin, D. M. Mermin, J. B. Merod, R. Morgan, S. J. Morgan, D. Novarr, A. R. Parker, S. M. Parrish, S. J. Redding, E. Rosenberg, D. R. Schwarz, S. Siegel, W. J. Slatoff, B. O. States, S. C. Strout, J. L. Walker, W. Wetherbee

Majors

Any student considering a major in English should see the director of undergraduate studies in English to arrange an assignment to a major adviser. Students are ordinarily assigned to major advisers early in the spring term of the sophomore year, but the Department encourages earlier assignment whenever possible.

Copies of a brochure containing suggestions for English majors and prospective English majors are available in the Department's office, 252 Goldwin Smith Hall. Since this brochure is revised each September to incorporate changes in the Department's curricular policies, interested students should take care to consult an up-to-date version.

Prospective English majors should take one or more courses from the group English 270, 271, 272, 280, 281 as early as possible. All these courses are open to sophomores; English 270, 271, 272 are also open to second-term freshmen and may be used to satisfy the freshman seminars requirement. First-term freshmen with advanced placement in English may enroll in English 270, 271, or 272 as space permits, and prospective English majors are encouraged to do so. The Department advises prospective English majors to take as many of these introductory courses as is consistent with the demands of their underclass program of study. As soon as students have completed one of these courses they may declare themselves as English majors, provided they have achieved a letter grade of C or better in this and any other English course they may have taken.

English majors are required to complete six hours of foreign language study (preferably in the literature of a foreign language) in courses for which Qualification is a prerequisite. Majors are urged to complete this requirement by the end of their sophomore year, and those who enter Cornell without sufficient preparation should therefore begin their language study at once.

In addition to satisfying the requirements outlined above, English majors must take a minimum of nine courses approved for the major and complete them with passing letter grades. Courses approved for the major are English 201, 202, and all English courses numbered 300 or above except English 479, English 479A, English 496, and English 678. A student may also offer in satisfaction of the major as many as three courses numbered 300 or above in a foreign literature, in comparative literature, or in special courses such as those sponsored by the Society for

the Humanities, provided these alternatives are approved by the adviser as relevant to the major.

Among the courses approved for the major, English 201 and 202 are especially recommended for English majors and should be taken by the end of the sophomore year. Students who do not take English 201-202 should choose their major courses with a view toward covering the historical range of English and American literature. Literature courses at the 300 level are intended to provide such coverage.

Of the nine courses required for the major, at least two must be in English or American literature written before 1800.

The Honors Program

Students with good records in their English courses who would like to compete for a degree with honors should consult the chairman of the Honors Committee during the spring term of their junior year, preferably before pre-registration. If they are accepted into the program they may compete for honors in one of three fashions: (1) by writing a long essay during the fall term of the senior year (English 493), or (2) by their performance in an intensive senior honors course (English 490) during the fall term of the senior year, or (3) by submitting to a written examination on a previously chosen reading list at the end of the fall term of the senior year. The choice of (1), (2), or (3) should be made in consultation with the Chairman of the Honors Committee during preregistration in the spring term of the junior year. More information about the Program may be found in the Department's brochure for prospective majors, available in the Department offices, 252 Goldwin Smith Hall.

Distribution Requirement

The distribution requirement in the humanities may be satisfied with any two courses in English at the 200 level or above other than those numbered in the 80s, those required for teacher certification (English 479, 479A, and 678), and English 496.

The distribution requirement in the expressive arts may be satisfied with any two courses in English at the 200 level or above numbered in the 80s.

The Independent Major Program

For students who wish to design an independent major (see p. 27) with a component in English or American literature, a departmental representative will recommend advisers in the Department with particular interdisciplinary interests. Advisers will help to design major programs which focus on the relation between literature and another discipline, such as history, linguistics, sociology, anthropology, psychology, or philosophy; on the classical background of English literature; on American studies; on studies in the culture of the Middle Ages, the Renaissance, or other periods; and on interrelations between English

and other literatures. Students in the Independent Major Program may enroll in English 494, a course designed to meet a curricular need where no regular course is available. The Department will attempt to sponsor, in cooperation with other departments, special seminars for groups of students with common interdisciplinary interests.

Nonmajors

For students not majoring in English, the Department makes available a variety of courses at all levels. Some courses at the 200 level are open to qualified freshmen, and all of them are open to sophomores. Courses at the 300 level are open to juniors and seniors, and to sophomores with permission of the instructor. The suitability of courses at the 400 and 600 levels for nonmajors will vary from topic to topic, and consent of the instructor is required.

Teaching Preparation

Prospective teachers of English in secondary schools who seek temporary certification in New York State must fulfill all the requirements of the major. In addition, they elect a special program of professional courses. A detailed statement about programs for teachers is available in the office of the Department of English.

Courses for Freshmen

As part of the Freshman Seminars Program, the Department of English offers many one-semester courses, each conducted in small sections with limited enrollment. The courses are concerned with various forms of writing (narrative, biographical, expository), with the study of specific areas in English and American literature, and with the relation of literature to culture. Students may elect any two of these courses during their first year to satisfy the freshman seminars requirement (see p. 14). See also English 270, 271, and 272, below.

Courses for Sophomores

Although courses numbered in the 200s are primarily for sophomores, some of them are open to qualified freshmen and to upperclassmen.

201-202 The English Literary Tradition 201 fall term only; 202 spring term only. Credit four hours a term. Open to all undergraduates. English 201 not prerequisite to English 202. May be counted toward the English major. M W F 11:15. Fall term: R. E. Kaske and B. B. Adams. Spring term: M. H. Abrams and R. D. Hume.

Interpretation of major works from *Beowulf* through Yeats. Fall term will include Old English poetry, Chaucer, medieval romances, Spenser, Shakespeare, Donne, and Milton. Spring term will include Dryden, Swift, Pope, Samuel Johnson, Blake, Jane Austen, the major Romantic and Victorian poets, Shaw, and

Yeats. The course will be conducted by a combination of lectures and intensive seminars in special topics.

205-206 Readings in English and American Literature 205 fall term only; 206 spring term only. Credit three hours a term. Open to all undergraduates. English 205 not prerequisite to English 206. Primarily for students who do not expect to major in English. M W F 10:10. Fall term: R. T. Farrell. Spring term: J. P. Bishop.

Fall term: a general view of major themes and authors in early British and American literature. Not essentially a survey course, but rather an examination of selected works of fiction, poetry, and drama which will explore both the texts themselves and the cultural contexts in which they originated. Included will be the *Beowulf* poet, Chaucer, Shakespeare, Donne, Pope, Swift, literature of the American Revolution, Washington Irving, Cooper, and a few short pieces by Hawthorne and Melville. Spring term: literature since the mid-nineteenth century. Readings will include works by Whitman, Dickens, T. S. Eliot, and D. H. Lawrence.

227 Shakespeare Either term. Credit three hours. Primarily for students who do not expect to major in English. Sections limited to twenty-five students. M W F 10:10 or 1:25. Fall term: A. V. Ettin. Spring term: S. J. Redding and C. S. Levy.

A critical study of representative plays from the principal periods of Shakespeare's career.

270 The Reading of Fiction Either term. Credit three hours. Recommended for prospective majors in English. Primarily for sophomores. Upperclassmen admitted as space permits. Fall term: open to freshmen who have received advanced placement in English. Spring term: open to other qualified freshmen. May be used to satisfy either the freshman seminars requirement or the distribution requirement in the humanities, but not both. Sections limited to twenty-two students. M W F 1:25 or 2:30; T Th 12:20-1:35. Fall term: E. Rosenberg and others. Spring term: D. R. Schwarz and others.

Forms of modern fiction, with emphasis on the short story and novella. Critical studies of works by English, American, and continental writers from 1880 to the present—Chekhov, James, Conrad, Faulkner, Mann, Kafka, and others.

271 The Reading of Poetry Either term. Credit three hours. Recommended for prospective majors in English. Primarily for sophomores. Upperclassmen admitted as space permits. Fall term: open to freshmen who have received advanced placement in English. Spring term: open to other qualified freshmen. May be used to satisfy either the freshman seminars requirement or the distribution requirement in the humanities, but not both. Sections limited to twenty-two students. M W F 10:10 or 11:15. S. B. Elledge and others.

Designed to sharpen the student's powers to understand and respond to poetry. Readings in the major

periods, modes, and genres of poetry written in English.

272 Introduction to Drama Either term. Credit three hours. Recommended for prospective majors in English. Primarily for sophomores. Upperclassmen admitted as space permits. Fall term: open to freshmen who have received advanced placement in English. Spring term: open to other qualified freshmen. May be used to satisfy either the freshman seminars requirement or the distribution requirement in the humanities, but not both. Sections limited to twenty-two students. M W F 9:05 or 12:20. Fall term: B. O. States and T. L. Jeffers. Spring term: A. Caputi.

A study of how drama molds feeling and comprehension by integrating such means available to the dramatist as action, language, and artistic design. Critical examination of plays of all periods, including the twentieth century, with major emphasis on plays written in English, but with collateral examples of outstanding plays from the European tradition. The syllabus will be adjusted from year to year to include plays produced on campus under the sponsorship of the Department of Theatre Arts.

280-281 Creative Writing 280 fall term only; 281 spring term only. Credit three hours a term. Recommended for prospective majors in English. English 280 or consent of the instructor prerequisite to English 281. Sections limited to fifteen students. M W 9:05 or 3:35, T Th 9:05 or 12:20, and conferences to be arranged. H. Kaye and others.

An introductory course in the theory and practice of writing narrative, poetry, and allied forms.

288-289 Expository Writing 288 fall term only; 289 spring term only. Credit three hours a term. For sophomores, juniors, and seniors who have performed well in the Freshman Seminars Program (or in equivalent courses elsewhere), and who desire further practice in writing exposition. Prerequisite to English 289: English 288 or consent of the instructor. Sections limited to fifteen students. M W 9:05 or T Th 9:05 and conferences to be arranged. Staff.

Regular weekly writing and reading assignments in the chief types of nonfictional prose such as argumentation, description, analysis, criticism, and personal essays.

Courses for Juniors and Seniors

Courses at the 300 level are open to juniors and seniors, and to others with permission of the instructor. There are no prerequisites, except as noted for English 382-383 and 384-385. Most courses at the 400 level are limited in enrollment and require the consent of the instructor.

Major Periods of English Literature

310 Old and Middle English Literature Fall term. Credit four hours. M W F 10:10. K. Hume.

A survey of Old and Middle English literature (in translation) covering *Beowulf* and the other major poems from the earlier period; also selections from Chaucer's *Canterbury Tales*, the works of the *Pearl-poet*, *Piers Plowman*, *The Owl* and *the Nightingale*, romances, lyrics, drama, and Malory.

320 Renaissance Literature Spring term. Credit four hours. M W F 10:10. H. S. McMillin.

Interpretations of the major Renaissance writers of poetry (Spenser, Donne, Milton), drama (Marlowe, Shakespeare, Jonson), and prose (Bacon, Hooker, Browne). Lectures on these writers will be combined with discussion groups on such topics as: the Elizabethan sonnet, music and lyric poetry, the sense of nature in poetry and drama, Shakespeare and the Elizabethan stage.

330 Restoration and Eighteenth-Century Literature Fall term. Credit four hours. M W F 1:25. R. D. Hume.

Particular attention to Rochester, Dryden, Pope, Swift, Defoe, Fielding, Sterne, Johnson, and Blake; a study of the literature in its social, philosophical, and political contexts.

340 Nineteenth-Century Literature Fall term. Credit four hours. Two lectures and one discussion section per week. M W F 2:30. S. M. Parrish.

The main literary and intellectual traditions of the nineteenth century, explored through readings in the major writers from the early Wordsworth to the early George Bernard Shaw. Three novels, two plays, and a work of "controversial prose" will be read in full: Jane Austen, *Pride and Prejudice*; Shelley, *The Cenci*; Dickens, *Hard Times*; Arnold, *Culture and Anarchy*; Hardy, *Jude the Obscure*; and Shaw, *Mrs. Warren's Profession*. The other readings will be in the major poets and essayists of the romantic and Victorian periods.

350 The Twentieth Century Spring term. Credit four hours. M W F 1:25. S. Siegel.

Interpretations of English and Anglo-Irish poetry, fiction, and drama from 1900 to the present. Lectures and discussion. Topics will include: the English esthetic movement; the Abbey Theater; imagism; the Bloomsbury group; and experimental literary forms after World War II. Authors will include Yeats, Synge, Joyce, Eliot, D. H. Lawrence, Virginia Woolf, Ford Madox Ford, E. M. Forster, Beckett, and Pinter.

Major English Authors

319 Chaucer Fall term. Credit four hours. M W F 11:15. T. D. Hill.

Critical analysis of *Troilus* and *The Canterbury Tales*.

327 Shakespeare Spring term. Credit four hours. M W F 11:15. P. A. Gottschalk.

An introduction to the works of Shakespeare, based on a selection of plays representative of the stages of his artistic development and the range of his

achievement. Throughout, the effort will be to discover the special qualities of each play through an understanding of Shakespeare's constructive power, his dramatic and theatrical technique, his insight into humanity, and his relation to the thought and culture of his time and ours.

329 Milton Fall term. Credit four hours. T Th 9:05 and a third hour to be arranged. S. B. Elledge.

All of Milton's English poems and selections from his prose. Lectures and discussions.

Major Periods of American Literature

361 Early American Literature Fall term. Credit four hours. M W F 12:20. J. P. Bishop.

The literature of ideas produced by America's Puritan and Enlightenment writers: Bradford, Taylor, Edwards, Franklin. And the first achievements of the national literature: Irving, Cooper, Poe, Hawthorne.

362 The American Renaissance Spring term. Credit four hours. M W F 12:20. D. E. McCall.

America's literary maturity at mid-century: the individual masterpieces and the interrelated careers of Emerson, Thoreau, Hawthorne, Melville, Whitman, and Dickinson.

363 The Age of Realism Fall term. Credit four hours. T Th 2:30-3:45. S. C. Strout.

American fiction's increasing concern with social fact after the Civil War: the extent to which writers present their characters in social roles and confront them with problems of cultural identity, class, race, and sex. Representative works by Twain, Howells, James, Wharton, Frederic, and Kate Chopin.

364 American Literature in the Twentieth Century Spring term. Credit four hours. M W F 1:25. W. J. Slaffoff.

Works by Robinson, Eliot, Frost, Hughes, O'Neill, Hemingway, Faulkner, Baldwin, and others. Although some attempt will be made to view the period as a whole and to trace patterns within it, the emphasis will be on the works themselves.

Genres and Special Topics

365 The Negro in American Literature Spring term. Credit four hours. M W F 10:10. S. Redding.

The development of writing by Negroes in relation to the corpus of American literature. The course is principally a lecture and reading course, though class discussion is encouraged. A term paper on a previously approved subject is required and due three weeks prior to a mandatory final examination.

366 The Modern American Novel Fall term. Credit four hours. M W F 3:35. H. Kaye.

A survey of American fiction from 1900 to the present, including works by Dreiser, Lewis, Dos Passos, Hemingway, Fitzgerald, Faulkner, West, Chandler,

Hammett, Ellison, Nabokov, Barth, Malamud, and others.

370 The Nineteenth-Century British Novel

Spring term. Credit four hours. M W F 12:20. J. F. Blackall.

Representative works by major nineteenth-century British novelists. Books to be read in 1975 will be: Austen, *Emma*; Thackeray, *Vanity Fair*; E. Brontë, *Wuthering Heights*; C. Brontë, *Villette*; Eliot, *The Mill on the Floss*; Dickens, *Bleak House*; Hardy, *The Mayor of Casterbridge*; Wells, *Tono-Bungay*.

[372 Representative English Dramas] Fall term. Credit four hours. M W F 9:05. To be offered in 1975-76. Not offered in 1974-75.]

Creative Writing

382-383 Narrative Writing 382 fall term only; 383 spring term only. Credit four hours a term. Sections limited to fifteen students. Prerequisite: English 280-281 or consent of the instructor. T Th 11:15 and conferences to be arranged. A. Lurie and others.

The writing of fiction; study of models; analysis of students' work.

384-385 Verse Writing 384 fall term only; 385 spring term only. Credit four hours a term. Sections limited to fifteen students. Prerequisite: English 280-281 or consent of the instructor. T 2:30-4:25. R. Morgan and others.

The writing of poetry; study of models; analysis of students' poems; personal conferences.

388-389 The Art of the Essay 388 fall term only; 389 spring term only. Credit four hours a term. Limited to eighteen students. First term not prerequisite to the second. T Th 11:15 and a third hour to be arranged. Fall term: R. Morgan. Spring term: A. V. Ettin.

Intensive practice in writing criticism, general exposition, and personal essays.

Other Undergraduate Courses

411 Old English in Translation Spring term. Credit four hours. M W F 11:15. T. D. Hill.

Cultural backgrounds, reading, and a critical analysis of Anglo-Saxon poetry in translation; pagan and Christian epic, elegy, heroic legend, and other forms.

427 Shakespeare Fall term. Credit four hours. Limited to fifteen students. Prerequisites: English 327 and consent of the instructor. M W F 10:10. S. Redding.

An intensive study of three or four of Shakespeare's plays.

448 Literature of Social Protest in Nineteenth-Century England Fall term. Credit four hours. M W F 9:05. S. Gill, visiting professor.

The development of social analysis and protest in the novels of Disraeli, Elizabeth Gaskell, Charles Kingsley, and Dickens and in the prose of Carlyle, Ruskin, and Morris. Some aspects of D. H. Lawrence's work will be considered as a twentieth-century response to a situation analyzed more hopefully in the preceding century.

454 Studies in Modern Poetry Spring term. Credit four hours. M W F 9:05. J. L. Walker.

Topic to be announced.

460 Studies in American Literature Fall term. Credit four hours. Limited to fifteen students. Prerequisite: some work in American literature or American intellectual history. M W F 2:30. S. Redding.

The focus of this course is on the contributions certain representative American authors (Cooper, Emerson, Faulkner, Fitzgerald, Hawthorne, Hughes, James, Lewis, Melville, *et al.*) have made to concepts of American culture, social thought and theory, and the relevance of these to the search for grace and the American ideal type—male and female—as major themes in American literature.

470 Studies in the Novel Spring term. Credit four hours. Limited to fifteen students. Prerequisite: consent of the instructor. M W F 12:20. D. R. Schwarz.

A critical study of the major fiction of Conrad, Lawrence, and Joyce. Readings will include *Heart of Darkness*, *Lord Jim*, *The Secret Sharer*, *Sons and Lovers*, *The Rainbow*, and *Women in Love*. The last five weeks of the course will be spent on *Ulysses*. An effort will be made to show how the innovations that each author brings to the novel form derive from the demands of his characteristic themes.

471 Theory of the Romance Form Spring term. Credit four hours. M W F 9:05. K. Hume.

Designed to acquaint the student with great romances from the Middle Ages and Renaissance, and to place these works within the total tradition which ranges from classical myth to modern fantasy. Special emphasis on the psychological, mythological, anthropological, and literary theories best suited to understanding the nature and function of the form. Works and authors read will include myths and folktales, *Beowulf*, *Sir Gawain and the Green Knight*, Spenser, Shakespeare, J. R. R. Tolkien, C. S. Lewis, Frank Herbert, James Branch Cabell, George MacDonald, and some science fiction. Background reading will include studies by Erich Neumann, C. J. Jung, Mircea Eliade, Joseph Campbell, and Northrop Frye.

473 Literature and Theory Spring term. Credit four hours. Limited to fifteen students. M W F 2:30. Topic and instructor to be announced.

477 Children's Literature Fall term. Credit four hours. Limited to fifteen students. T Th 2:30-3:45. A. Lurie.

A survey of English and American children's books of the nineteenth and twentieth centuries, with emphasis on those works of literary value and influence.

479 Observation and Practice Teaching Either term. Credit six hours. Prerequisites: senior standing and admission to the Department's undergraduate teacher preparation program. Ordinarily taken concurrently with English 678, The Teaching of English; both courses are offered either term. Neither course may be used in satisfaction of the English major. Time to be arranged. R. T. Farrell.

479A Directed Study: Problems in Teaching English Language and Literature Either term. Credit four hours. May not be used in satisfaction of English major. Time to be arranged. R. T. Farrell.

Students will undertake to deal with specific problems in the teaching of English on the secondary level. They will be expected to combine practical classroom work at the high school or junior high school level with background readings and research. A term paper will be expected which reviews both the research and the practical work the student has undertaken.

480-481 Seminar in Writing 480 fall term only; 481 spring term only. Credit four hours a term. Prerequisites: 382-383, 384-385, or consent of the instructor. Limited to fifteen students. T 12:20-2:15. J. R. McConkey.

Intended for those writers who have already gained a basic mastery of technique. Students normally enroll for both terms and should be capable of a major project—a collection of stories or poems, a group of personal essays, or perhaps a novel—to be completed by the end of the second semester. In general, the weekly seminars will be used for discussions of the manuscripts of its members and of certain published works that individual members have found of exceptional value.

[490 Honors Seminar Fall term. Credit five hours. Prerequisites: senior standing and permission of the chairman of the Honors Committee. Limited to twelve students. J. F. Blackall. Not offered in 1974-75.]

493 Honors Essay Tutorial Fall term. Credit five hours. Prerequisite: senior standing and permission of the chairman of the Honors Committee. Time to be arranged. Staff.

494 Independent Study Either term. Credit four hours. Prerequisite: completion of English honors requirement, or acceptance in the Independent Major Program and consent of a departmental adviser. Time to be arranged. Staff.

496 Teaching and Research Either term. Credit one or two hours. May not be used in satisfaction of the English major. Time to be arranged. Staff.

For students who, with the consent of a professor, assist in the teaching of that professor's course.

Courses for Upperclassmen and Graduate Students

Consent of the instructor is a prerequisite for admission to any course numbered in the 600s; most of these courses are limited to fifteen or twenty students, at the discretion of the instructor.

611 Readings in Old English Fall term. Credit four hours. M W F 1:25. T. D. Hill.

The main emphasis of the course will be on learning to read Old English as accurately and fluently as possible, but the course will also serve as an introduction to Old English literature and the intellectual and historical context of this literature.

612 Beowulf Spring term. Credit four hours. M W F 1:25. T. D. Hill.

A close reading of the text and consideration of the literary, historical, and philological problems it presents.

613 Middle English Literature Fall term. Credit four hours. T 2:30-4:25 and Th 2:30-3:25. R. E. Kaske.

Reading and critical analysis of major Middle English literary works, excluding Chaucer and the drama; a norm would be selections from Layamon's *Brut*, *The Owl and the Nightingale*, *Sir Gawain and the Green Knight*, *Pearl*, and *Piers Plowman*. Emphasis will be primarily on literary interpretation, though an intelligent reading will of course require some attention to the language itself; for this purpose, there will be a one-hour class each week devoted to difficulties in the language of the works being read.

[615 The Age of Bede] Credit four hours. R. T. Farrell. Not offered in 1974-75.]

619 Chaucer Spring term. Credit four hours. M W F 2:30. K. Hume.

Intensive reading of Chaucer's major works.

621 Studies in the Sixteenth Century Spring term. Credit four hours. T 12:20-3:00. C. V. Kaske.

Topic for 1974-75: Spenser. Discussion and critical study of *The Faerie Queene* in the light of existing genres and currents of thought and feeling. Minor works such as *Epithalamion* will be brought in where relevant.

623 Studies in the Seventeenth Century Fall term. Credit four hours. T Th 10:10-11:25. D. Novarr.

Topic for 1974-75: metaphysical poetry. Close reading and discussion of the poetry of Donne, Herbert, Crashaw, Vaughan, Traherne, and Marvell, with a view toward assessing their individual achievements and toward arriving at conclusions about a poetic which defines the metaphysical tradition.

630 Studies in the Eighteenth Century Fall term. Credit four hours. W 3:35-5:30. R. D. Hume.

Topic for 1974-75: Swift. Particular emphasis on Swift's poetry, political pamphlets, and *A Tale of a Tub*.

632 The Age of Johnson Spring term. Credit four hours. M W F 10:10. D. D. Eddy.

A study of the prose and poetry of Dr. Johnson, Boswell's *Life of Johnson*, and representative works of Goldsmith, Reynolds, and others.

634 Restoration and Eighteenth-Century Drama Spring term. Credit four hours. T Th 10:10 and a third hour to be arranged. M. R. Brownell.

The plays of Etherege, Wycherley, Congreve, Dryden, Sheridan, and others.

641 Studies in Romantic Literature Fall term. Credit four hours. W 1:25-3:20. S. Gill.

Topic for 1974-75: Wordsworth.

647 Studies in Victorian Poetry and Prose Spring term. Credit four hours. T Th 10:10-11:25. D. M. Mermin.

Emphasis will be on Tennyson, Browning, and Arnold, and a few major works of nonfictional prose.

648 Studies in Victorian Fiction Fall term. Credit four hours. M W F 10:10. S. J. Morgan.

Eliot, Meredith, James. An examination of their use of the conventions of hero and heroine and the relation of these conventions to their narrative technique.

652 Studies in Modern Fiction Fall term. Credit four hours. T Th 10:10-11:40. M. Carlson.

Finnegans Wake. A study of the general structure and technique of James Joyce's final work with close reading of selected sections.

653 Studies in Modern Fiction Spring term. Credit four hours. T Th 10:10 and a third hour to be arranged. D. K. McCall.

Doris Lessing: an intensive study of her major fiction. Readings will include *The Grass is Singing*, the first and the final volumes of *Children of Violence* (*Martha Quest* and *The Four-Gated City*) *The Golden Notebook*, *Briefing for a Descent into Hell*, and *The Summer before the Dark*.

654 Studies in Twentieth-Century Poetry Fall term. Credit four hours. M 2:30-4:25 and F 2:30-3:20. S. Siegel.

Detailed study of Yeats, Hart Crane, and Wallace Stevens. Emphasis will be on their relation to the romantic tradition and the emergence of modernism in the first decades of the twentieth century. There will be some readings in Shelley and Wordsworth, Pound, and Eliot.

660 The Political Novel in America Spring term. Credit four hours. M W 2:30-4:00. S. C. Strout.

Critical study of radical, conservative, and liberal politically oriented novels by important writers from

1869-1971. Examples from DeForest, Twain, James, Steinbeck, Dos Passos, Hemingway, Warren, Ellison, and others. The novel will be considered both as a source of insight and as an historical source. Common readings and interpretive papers.

661 Studies in American Literature Fall term. Credit four hours. M 1:25-3:20. R. H. Elias.

Topic for 1974-75: social realism and documentary expression in the 1930s. A study of selected texts that embody some of the decade's principal literary concerns; included will be such works as Dos Passos's *U.S.A.*, Steinbeck's *The Grapes of Wrath*, Agee's and Evan's *Let Us Now Praise Famous Men*, Wright's *Uncle Tom's Children* and *Native Son*, and Saroyan's short stories and plays. Consideration will also be given to the work of photojournalists and to the various arts projects supported by the federal government. Some background in the history of the period is desirable.

662 Studies in Nineteenth-Century American Fiction Spring term. Credit four hours. M W F 1:25. D. E. McCall.

Topic for 1974-75: Hawthorne and James.

665 Studies in Modern American Poetry Fall term. Credit four hours. M W F 11:15. W. J. Harris.

Topic for 1974-75: from imagism to Robert Lowell. Readings in Frost, Sandburg, Stevens, Williams, Pound, Eliot, Hughes, Gwendolyn Brooks, and others.

667 Political Religion in America Fall term. Credit four hours. M W F 10:10. S. C. Strout.

Historical study of the political consequences of religiously oriented movements in America with special attention to the issues of revivalism, revolution, disestablishment, antislavery, the Social Gospel, non-violent resistance, millennialism, and First Amendment religious clauses. Texts will include writings by radical, liberal, and conservative spokesmen, as well as legal and sociological analyses. Previous course work in American history or government and some familiarity with theological terms desirable.

[668 Studies in American Culture] Spring term. Credit four hours. R. H. Elias. To be offered 1975-76. Not offered in 1974-75.]

672 Studies in Dramatic Literature Fall term. Credit four hours. M W F 11:15. A. Caputi.

Topic for 1974: tragedy and its near relatives. A study of traditional tragedy, of related dramatic forms, and of the problems of describing them.

673 Literary Criticism Fall term. Credit four hours. T Th 12:20-1:35. S. B. Elledge.

Introduction to rhetorical criticism. A study of classical ideas about literature. Selections from Plato, Aristotle, Horace, Longinus, Sidney, Jonson, Dryden, and Johnson.

674 Studies in Biography Fall term. Credit four hours. T Th 12:20-1:35. D. Novarr.

Study of lives by Plutarch, Walton, Johnson, Boswell, Carlyle, Freud, Strachey, Virginia Woolf, Erikson, and others. Some emphasis on the relation of biography to the novel and to history, psychology, autobiography, and other disciplines in order to explore the main theoretical and critical problems which the art of biography poses.

675 Studies in the English Language Fall term. Credit four hours. M W F 9:05. B. L. Hathaway.

Topic to be announced.

678 The Teaching of English Either term. Credit four hours. Prerequisite: admission to one of the Department's teacher preparation programs. Students should take this course concurrently with English 479 or 779 (practice teaching courses); English 479, 678, and 779 are all offered either term. None of these courses may be used to satisfy the English major. Time to be arranged. R. T. Farrell.

A course in the problems and methods of teaching English in high school.

690 Studies in the Psychoanalytic Tradition in Literature and History Spring term. Credit four hours. Th 12:20-2:15. S. C. Strout.

Critical analysis of the contributions of depth psychology and ego psychology to humanistic studies in biography, history, and literature. Seminar emphasizes methodological issues and specific examples from Freud, Erikson, and contemporary humanistic scholars.

698 Critical and Scholarly Perspectives I Fall term. Credit four hours. Beginning Ph.D. students are urged to enroll in this course or its spring term counterpart, English 699. M 3:35-5:30. S. Budick.

The basic problems in literary scholarship and literary criticism as these emerge in a close study of selected masterpieces of English or American literature. Fall 1974: meditative forms in seventeenth-century prose and poetry.

699 Critical and Scholarly Perspectives II Spring term. Credit four hours. Beginning Ph.D. students are urged to enroll in this course or its fall term counterpart, English 698. M 3:35-5:30. M. H. Abrams.

The basic problems in literary scholarship and literary criticism, as these emerge in a close study of selected masterpieces of English or American literature. Spring 1975: the poems of Keats, especially his great Odes. The modes of reasoning, and the criteria for settling disputes, in establishing the text, in interpreting and evaluating a poem, and in determining the relevance, for understanding a poem, of its relations to literary traditions, to the life and temperament of the poet, and to its intellectual and cultural milieu. The reading will include, in addition to the poems and letters of Keats, some poems by his

predecessors and contemporaries and selected biographies and critical essays.

Courses for Graduate Students

Consent of the instructor is a prerequisite for admission to any course numbered in the 700s; most of these courses are limited in enrollment at the discretion of the instructor. For course descriptions see the mimeographed supplement published by the Department of English, 252 Goldwin Smith Hall.

710 Graduate Seminar in Medieval Literature Spring term. Credit five hours. A. B. Groos, Jr.

721 Graduate Seminar in Renaissance Literature Fall term. Credit five hours. A. Ettin.

Topic for 1974-75: the pastoral in literature and the visual arts.

725 Graduate Seminar in Renaissance Drama Spring term. Credit five hours. P. A. Gottschalk.

748 Graduate Seminar in Nineteenth-Century Fiction Spring term. Credit five hours. S. J. Morgan.

Topic for 1974-75: Jane Austen.

752 Graduate Seminar in Modern Fiction Fall term. Credit five hours. W. J. Slatoff.

761 Graduate Seminar in Early American Literature Spring term. Five hours. M. J. Colacurcio.

Topic for 1974-75: the Puritan mind.

765 Graduate Seminar in Modern American Poetry Spring term. Credit five hours. B. L. Hathaway.

780-781 Creative Writing 780 fall term only; 781 spring term only. Credit five hours a term. D. E. McCall and R. Morgan.

791 Graduate Seminar in Poetry Spring term. Credit five hours. C. S. Levy.

Topic for 1974-75: selected lyric sequences, Dante to Berryman, with special emphasis on the Elizabethans.

792 Graduate Seminar in Arnold and T. S. Eliot Fall term. Credit five hours. D. M. Mermin.

793 Master's Essay Either term. No credit. Staff.

794 Directed Study Either term. Credit five hours. Staff.

795 Group Study Either term. Credit five hours. Staff.

796 Teaching and Research Either term. Credit five hours. Staff.

The following courses offered by other departments will be of particular interest to English majors and graduate students.

Courses in Classical and Ancient Literature

Greek and Roman Drama (Classics 300, Comparative Literature 300)

The Literature of Ancient Israel (Comparative Literature 323-324, Semitics 330-331)

Greek Foundations of Western Literature (Classics 331, Comparative Literature 331)

Pagan to Christian in Rome (Classics 332, Comparative Literature 332)

Ancient Wit: An Introduction to the Theory and Form of Comic and Satiric Writing in Greece and Rome (Classics 339, Comparative Literature 339)

Readings in the New Testament (Comparative Literature 429)

Courses in Dramatic Literature

Classic and Renaissance Drama (Comparative Literature 352, Theatre Arts 325)

European Drama 1660-1900 (Comparative Literature 353, Theatre Arts 326)

Modern Drama (Comparative Literature 354, Theatre Arts 327)

American Drama and Theatre (Theatre Arts 335)

Courses in the Literature of Europe and America

Medieval Literature (Comparative Literature 343-344)

The Literature of Europe since the Renaissance (Comparative Literature 356-357)

The Modern European Novel (Comparative Literature 363-364)

The Detective Story: Form and Function (Comparative Literature 413)

The Novella in World Literature (Comparative Literature 414)

Don Juan and Faust (Comparative Literature 416)

James Joyce and the European Tradition (Comparative Literature 417)

Italy and the Transalpine Renaissance: Ariosto, Spenser, and Rabelais (Comparative Literature 424)

Allegory and Symbolism (Comparative Literature 446)

The Picaresque Novel (Comparative Literature 463, Spanish 455)

Fiction and the Irrational (Comparative Literature 479)**Origins of the Avant-Garde (Comparative Literature 499)****Aesthetic Theory and Text in the Eighteenth Century (Comparative Literature 665, German Literature 665)****Baudelaire (Comparative Literature 681)****Three Novelists: Dickens, Balzac, and Mann (Comparative Literature 688)****Topics in Modern Literature: Literature and History (Comparative Literature 698)****Topics in Modern Literature: From Formalism to Structuralism (Comparative Literature 699)****American Women Poets (Women's Studies 367)****Male Novelist and Heroine (Women's Studies 368)****Seminar on the Interpretation of Eighteenth-Century Literature (Society for the Humanities 415-416)****Seminar on Twentieth-Century Poetry in America and Russia (Society for the Humanities 427-428)****History of Afro-American Literature (Africana Studies 321-322)**

French

For complete course listings and for details of the major, see the heading French in the section Modern Foreign Languages and Literatures.

Geological Sciences

J. E. Oliver, chairman; J. M. Bird, A. L. Bloom, B. Bonnicksen, J. L. Cisne, B. L. Isacks, D. E. Karig, S. Kaufman, G. A. Kiersch, W. B. Travers, D. L. Turcotte.

The Department of Geological Sciences is an inter-college department in the College of Arts and Sciences and the College of Engineering.

Distribution Requirement

The distribution requirement in physical sciences is met by Geological Sciences 101-102.

Geological Sciences Major

Some prerequisites to admission to a major in geological sciences are completion of Geological Sciences 101-102 and two of the two-semester sequences of courses chosen from the following, or their equivalents: Biological Sciences 101-102 and 103-104; Chemistry 107-108; Mathematics 191-192; and Physics 112-213. A student with a strong foundation in mathematics and science may be accepted as a major without completion of Geological Sciences 101-102.

Majors take the six core courses in geological sciences, a summer field geology course, one additional course in geological sciences numbered 400 or above, and a third two-semester sequence chosen from the courses in biological sciences, chemistry, mathematics, and physics listed above plus an additional course in one of these fields at an intermediate or advanced level. In addition, majors must complete a senior thesis. The core courses in geological sciences include 325, 345, 355-356, 376, and 388. A prospective major should consult the departmental major adviser, W. B. Travers, 219 Kimball Hall, as soon as possible for advice in planning a program. Students majoring in geological sciences should attend the departmental seminars and take advantage of cruises, field trips, and conferences offered through the Department of Geological Sciences.

Freshman and Sophomore Courses

101 Introductory Geological Science Either term. Credit three hours. Lectures, T Th 9:05 or 11:15. Laboratory, M T W Th or F 2-4:25, S 10:10-12:35, W 7:30-10 p.m. Two scheduled preliminary examinations will be held at 7:30 p.m. during the term. Field trips. Fall term: W. B. Travers. Spring term: J. M. Bird.

Designed to give students a comprehensive understanding of earth processes, features, and history. Provides the basic knowledge for more specialized courses or a major in geological sciences. Study of the earth, particularly materials, structure, internal condition, and the physical and chemical processes at work.

102 Introduction to Historical Geology Spring term. Credit three hours. Prerequisite: Geological Sciences 101 recommended. Lectures, T Th 11:15. Laboratory M T W Th or F 2-4:25, W 7:30-10 p.m. Two scheduled preliminary examinations will be held at 7:30 p.m. during the term. J. L. Cisne and staff.

History of the earth and life in terms of the processes by which they have evolved. Study of the geologic record, its formation, and the ways it is used in interpreting earth history. Introduction to the evolution of life, to fossils and their use in reconstructing past environments and dating rocks. A continuation of Geological Sciences 101 which can be taken as a separate course.

103 Earth Science Fall term. Credit three hours. (See Earth Science Laboratory 105.) Lectures, M W F 9:05. A. L. Bloom.

Physical geography, including the spatial relationships of the earth, moon, and sun that determine the figure of the earth, time, seasons, atmospheric and oceanic circulation, and climates.

105 Earth Science Laboratory Fall term. Credit one hour. To be taken concurrently with Earth Science 103. Laboratory, W or Th 2-4:25. A. L. Bloom.

Observation and calculation of daily, monthly, and seasonal celestial events; topographical mapping and map interpretation; world climatic regions.

131 Geology and the Environment Fall term. Credit three hours. Lectures, T Th 9:05. Laboratory, T W or Th 2:00-4:25. A laboratory examination will be held at 7:30 p.m. the last week of the term. Field trips.

The principles of geological science with emphasis on physical phenomena and rock properties as they influence the natural environments of man. The cause and effect of geological problems encountered in the planning, construction, and operation of man's works, and the influence of environmental factors are analyzed in the laboratory.

162 Mineral and Energy Resources Spring term. Credit three hours. Lectures, T Th 9:05. B. Bonnichsen and W. B. Travers.

Utilization of and our dependence upon mineral resources; their nature, occurrence, distribution, and availability at home and abroad; political and economic aspects of their availability and control. Discussion of the energy crises and the long term development of additional energy reserves. Exploration and recovery methods for petroleum, natural gas, coal, uranium and geothermal power and the environmental damage from recovery are discussed.

232 Environmental Geology Spring term. Credit three hours. Prerequisite: Geological Sciences 101, 103, or 131. Lectures, M W 10:10. Laboratory and discussion periods, T W or Th 2-4:25. Field trips.

The geologic basis of man's environment and relevant impact on such aspects as: ecosystems, trace elements/health, energy/mineral resources, land use, population, laws and policies, pollution, disposal radioactive/industrial wastes, and the common geologically caused hazards. Laboratory exercises on major problems, discussion sessions, field trips, and a special project.

Junior, Senior, and Graduate Courses

Of the following, the core courses 325, 345, 355-356, 376, and 388 may be taken by those who have successfully completed Geological Sciences 101-102 or the equivalent, or who can demonstrate to the instructor that they have adequate preparation in mathematics, physics, chemistry, biology, or engi-

neering.

325 Structural Geology and Sedimentation

Spring term. Credit four hours. Suggested prerequisite: Geological Sciences 355 or consent of the instructor. Lectures, M W F 10:10. Laboratory, T 2-4:25. W. B. Travers.

Nature, origin, and recognition of geologic structures. Behavior of geologic materials, stresses, geomechanical and tectonic principles applied to the solution of geologic problems. Analysis of structural features by three-dimensional methods. Introduction to the sedimentary and hydraulic processes and petrology of sedimentary rocks. Description, classification, provenance, transportation, and depositional environment of sediments. The relationship between sedimentary structures, clay mineralogy, and pre-lithification deformation as indications of regional tectonic history. Compaction and diagenesis of sediments.

344 Geological Oceanography Spring term. Credit three hours. Prerequisite: Geological Sciences 102 or Biological Sciences 461. Lectures, M W F 9:05. Training cruise, depending on ship availability. A. L. Bloom and D. E. Karig.

Shoreline erosion, transportation, and deposition; origin and structure of continental shelves and ocean basins. Geologic processes and geomorphic development in the marine environment.

345 Geomorphology Fall term. Credit four hours. Prerequisite: Geological Sciences 102 or consent of the instructor. Lectures, T Th 9:05. Laboratory, W 2-4:25. Additional assigned problems. A. L. Bloom.

Description and interpretation of land forms in terms of structure, process, and stage.

355 Mineralogy, Petrology, and Geochemistry I

Fall term. Credit four hours. Prerequisite: Geological Sciences 102 or consent of the instructor. Lectures, T Th 10:10. Laboratory, W 2-4:25. Assigned problems and readings. Field trips. B. Bonnichsen.

Megascopic and optical properties, chemistry, and petrogenetic significance of rock-forming minerals. Principles of phase equilibria as applied to igneous and metamorphic systems. Description, classification, chemistry, petrography, origin, and regional distribution of igneous and metamorphic rocks. Geochemical distribution of trace elements and isotopes in igneous and metamorphic systems. Study of representative rock suites from various igneous and metamorphic terranes.

356 Mineralogy, Petrology, and Geochemistry II

Spring term. Credit four hours. Lectures, T Th 12:20. Laboratory, M 2-4:25. Assigned problems and readings. Field trips. B. Bonnichsen.

A continuation of 355.

376 Historical Geology and Stratigraphy

Fall term. Credit four hours. Lectures, M W 11:15. Laboratory, W Th 2-4:25. Additional assigned problems. J. L. Cisne.

Application of geologic principles to interpretation of earth history; development of the geologic column, geochronology and geochronometry; correlation and the zone concept; sedimentary environments and provinces; geosynclines and platforms; problems of the pre-Cambrian and continental evolution.

388 Geophysics and Geotectonics Spring term. Credit four hours. Prerequisite: Mathematics 112 and Physics 208 or equivalents. Lectures, M W F 10:10. Laboratory, to be arranged. B. L. Isacks and J. E. Oliver.

Global tectonics and the deep structure of the solid earth as revealed by investigations of earthquakes, earthquake waves, the earth's gravitational and magnetic fields, and heat flow. Emphasis on the integration of geophysical observations with the theory of plate tectonics.

Advanced Courses

410 Experiments and Techniques in Earth Sciences Spring term. Credit two hours. Prerequisites: Physics 207-208 and Mathematics 191-192 or the equivalents or consent of the instructor. Laboratory and field experiments chosen in accordance with the students' interests and designed to familiarize students with instruments and techniques used in earth sciences. Independent work is stressed.

423 Petroleum Geology Fall term. Credit three hours. Suggested prerequisite: Geological Sciences 325. Lectures, M W F 1:10. Laboratory, Th 2-4:25. Field trip. W. B. Travers.

Sedimentation and tectonics as conditions of hydrocarbon entrapment. Problems of petroleum exploration, including geophysical investigations, subsurface mapping, the movement of underground fluids, and the geophysical properties of subsurface fluids and sediments. The organization and operation of the petroleum industry, on-shore and off-shore exploration and production techniques. Future petroleum provinces, particularly in the off-shore region, and case histories of selected oil fields.

[424 Tectonics of Orogenic Zones: Modern and Ancient] Spring term. Offered in alternate years. Prerequisites: Consent of instructors. D. E. Karig and W. B. Travers. Not offered in 1974-75.]

428 Geomechanics Spring term. Credit three hours. Prerequisites: Mathematics 240 or 296. Geological Sciences 101. Lectures M W F 11:15. D. E. Karig and D. L. Turcotte.

This course will utilize mathematical analysis to a range of geological observations. Specific examples to be considered include: ocean ridges—their thermal structure, elevation, heat flow, and gravity; ocean trenches—the structure and mechanics of the bending lithosphere; folding—buckling, viscous and plastic flow; faulting—a detailed mechanical and geological study of the San Andreas Fault; intrusives—geothermal power.

[436 Rock Deformation] Spring term. Credit three hours. Prerequisite: Geological Sciences 325. Lectures, M W F 1:10. Not offered in 1974-75.]

461 Mineral Deposits: Metals Fall term. Credit four hours. Prerequisite: Geological Sciences 356 or consent of the instructor. Lectures, M F 10:10. Laboratory, F 2-4:25. Assigned problems and readings. Field trip. B. Bonnicksen.

Description, origin, distribution, and economic significance of the principal types of metallic ore deposits. Principles and processes involved in the formation of metallic ore deposits within the context of their geologic environments. Megascopic and microscopic identification of the principal opaque ore minerals; hand-sample and microscopic study of representative ore and rock suites from various mining districts.

462 Mineral Deposits: Nonmetals Spring term. Credit four hours. Prerequisite: Geological Sciences 461 or consent of the instructor. Lectures, M W F 10:10. Laboratory, F 2-4:25. Field trips. Staff.

Properties, occurrence, associations, distribution, and economic utilization of the industrial minerals and rocks.

471 Invertebrate Paleontology Fall term. Credit four hours. Prerequisite: Geological Sciences 102. Invertebrate zoology recommended. Lectures T Th 10:10. Laboratory, W Th 2-4:25. J. L. Cisne.

Paleobiology and classification of important fossil invertebrates. Problems of evolution. Use of organisms in reconstructing past environments.

483 Marine Tectonics Fall term. Credit three hours. Prerequisites: Geological Sciences 325 and a course in physics or geophysics. Lecture hours to be announced. Possible field trips. D. E. Karig.

Study of geophysical and geological characteristics of the earth's crust beneath the oceans. Review of strengths and limitations of marine exploratory techniques. Emphasis on recent geologic data concerning plate margins in the ocean, especially the island arc systems.

485 Physics of the Earth I Fall term. Credit three hours. Open to upperclass engineers, majors in the physical sciences, and others by permission of the instructor. D. L. Turcotte.

Rotation and figure of the earth, gravitational field, seismology, geomagnetism, creep and anelasticity, radioactivity, earth's internal heat, continental drift, and mantle convection.

486 Physics of the Earth II Spring term. Credit three hours. Open to upperclass engineers, majors in the physical sciences, and others by permission of the instructor. Physics of the Earth I is not required. A. R. Seebass.

Composition and structure of the atmosphere and oceans, radiative balance, heat budget, dynamics of the oceans and atmosphere, tides, geostrophic mot-

ions and thermal wind, Rossby waves and cyclogenesis, internal waves and seiches.

488 Introduction to Geophysical Prospecting

Fall term. Credit three hours. Prerequisites: Physics 112-213 and Mathematics 191-192, or equivalents, or consent of the instructor. Lectures T Th 11:15-12:30. S. Kaufman.

Covers the physical principles, instrumentation, operational procedures, and interpretation techniques in geophysical exploration for oil, gas, and minerals. Emphasis is on the seismic reflection, seismic refraction, gravity, and magnetics methods of exploration.

490 Senior Thesis Either term. Credit one hour. Staff.

[632 Exploration Geology] Spring term. Credit three hours. Prerequisites: field geology and, usually, graduate standing. Lectures, M W 9:05. Laboratory, W 2-4:25. Not offered in 1974-75.]

[633 Environmental/Engineering Geology: Theory] Fall term. Credit three hours. Prerequisite: Geological Sciences 325; 355-356 and 345 recommended. Lectures, M W 11:15. Laboratory, M 2-4:25. Field trips. Not offered in 1974-75.]

[635 Engineering Geology: Practice] Fall term. Credit three hours. Offered in alternate years. Prerequisites: Geological Sciences 633 or 325, 355-356, and 345. Lectures, M W 9:05. Laboratory, T 2-4:25. Field trips. Not offered in 1974-75.]

642 Glacial and Pleistocene Geology Spring term. Credit three hours. Prerequisite: Geological Sciences 345 or consent of the instructor. Lectures, T Th 9:05. Laboratory, T 2-4:25. Several Saturday field trips. A. L. Bloom.

673 Stratigraphy Fall term. Credit three hours. Offered in alternate years. Prerequisite: Geological Sciences 376. Lectures, T Th 9:05 and one hour to be arranged. J. M. Bird.

681 Geotectonics Fall term. Credit four hours. Prerequisite: consent of the instructor. Lectures, T Th 11:15-1:15. J. M. Bird.

Theories of orogeny; ocean and continent evolution. Kinematics of lithosphere plates. Rock-time assemblages of modern oceans and continental margins, and analogs in ancient orogenic belts. Time-space reconstructions of specific regions. Problems of dynamic mechanisms—corollaries and evidence from crustal features.

687 Seismology Fall term. Credit three hours. Prerequisite: Mathematics 421, 422, 423, or equivalent. Lectures, T Th 9:05 and one hour to be arranged. B. L. Isacks and J. E. Oliver.

Theories of generation and propagation of elastic waves in the earth. Derivation of the structure of the earth and the mechanisms of earthquakes from seismological observations.

688 Gravity, Geomagnetism, and Heat Flow

Spring term. Credit three hours. Prerequisite: Mathematics 421, 422, 423, or equivalent. Lectures, T Th 9:05 and one hour to be arranged. D. L. Turcotte.

Measurement and mathematical description of the gravitational and magnetic fields of the earth; heat flow; gravitational, magnetic, and heat flow anomalies and the structure of the earth; theories of the origin of the geomagnetic field. Selected advanced topics.

690 Seminars and Special Work Throughout the year. Credit two hours a term. Prerequisite: consent of the instructor.

Advanced work on original investigations in geological sciences.

690-1 Structural Geology, Sedimentation, and Tectonics W. B. Travers.

690-2 Petrology of Igneous Rocks and Metallic Ore Deposits B. Bonnicksen.

690-3 Coastal Geomorphology and Pleistocene Geology A. L. Bloom.

690-4 Environmental Engineering Geology, Geomechanics, and Hydrogeology G. A. Kiersch.

690-5 Geophysics, Seismology, Gravity, Magnetism, Heat Flow, Geotectonics B. L. Isacks, D. E. Karig, J. E. Oliver and D. L. Turcotte.

690-6 Invertebrate Paleontology and Paleogeology J. L. Cisne.

690-7 Mineral Deposits and Resources Staff.

690-8 Environmental Problems W. B. Travers.

690-9 Marine Geology D. E. Karig.

690-10 Plate Tectonics and Geology J. M. Bird.

Field Courses

[601 Intersession Field Trip] Credit one hour. Prerequisites: Geological Sciences 101-102 or equivalent and consent of the instructor. G. A. Kiersch. Not offered in 1974-75.]

602 Introductory Field Geology Spring term. Credit one hour. Prerequisites: one introductory course and Geological Sciences 325, or consent of the instructor. Four weekend trips and two laboratory meetings. Times to be arranged. W. B. Travers.

Techniques of field mapping will be learned by examining selective localities in southern New York and vicinity. Techniques will include use of the Brunton compass, detailed field descriptions of various rock types, the identification and field use of fossils, and the description of land forms. The students will make detailed and regional geologic maps, construct cross sections and columnar sections, and make observations on the environment of deposition or conditions of emplacement of rocks and describe their subsequent geologic history.

704 Western Field Course Spring term. Credit six hours. Prerequisites: four courses at the 300 level in geological sciences and consent of the instructor. F 2-4:25 and a 38-day trip to California, Nevada, and Utah.

A comparative study of our mountain ranges: California Coast Range, Sierra Nevada basin and range of Nevada, and Uinta Mountains in Utah. Seminar discussions and extensive reading at Cornell will precede the trip. Study of the following geologic problems is the main emphasis of the course: Mesozoic subduction near San Luis Obispo, California; recent earth movements along the San Andreas Fault near San Francisco; granitic pluton emplacement and volcanism in the northern Sierra Nevada; multiple-phase mountain building near Dixie Valley, Nevada; and sedimentology and block faulting of the Uinta Mountains in Utah. The latter will be seen during a five-day raft trip on the Green River through the core of the Uinta Mountains. An oil field in California and a copper mine in Nevada will be visited. Special lectures and field trips will be led by local experts.

German

For complete course listings and for details of the major, see the heading German in the section Modern Foreign Languages and Literatures.

Government

A. T. Dotson, chairman; B. R. O'G. Anderson, D. E. Ashford, M. G. Bernal, D. J. Danelski, W. J. Dannhauser, E. J. Eisenach, M. J. Esman, B. Ginsberg, G. McT. Kahin, M. Katzenstein, P. Katzenstein, E. W. Kelley, E. G. Kenworthy, I. Kramnick, T. J. Lowi, D. P. Mazingo, M. V. Nadel, T. J. Pempel, G. H. Quester, S. D. Resnick, R. Rosecrance, M. Rush, L. Scheinman, M. Shefter, S. G. Tarrow, N. T. Uphoff, D. E. Van Houweling, R. Weissberg, L. P. Williams, E. Zashin

For a major in government the following courses must be completed: (1) three of the following introductory courses: Government 111, Government 131, Government 161, and Government 181; (2) a minimum of twenty-four additional hours in Government Department courses numbered 300 or above; (3) in related subjects, a minimum of twelve hours selected with the approval of the adviser from courses numbered 300 or above in the Departments of Anthropology, Economics, History, Philosophy, Psychology, and Sociology. (S-U options are not allowed in any course needed to fulfill the government major.)

Juniors and seniors majoring in the Department of Government who have superior grade records may apply for supervised study in government with a par-

ticular instructor, whose consent is required. See the description for Government 498 and 499 (Supervised Study).

To accommodate new courses or changes in present courses, there will be a list of changes and new offerings maintained in the departmental office.

The Honors Program

The Honors Program provides intensive, supervised study for government majors who have demonstrated their potentialities for advanced work in the field. An average of B+ in government courses is the normal requirement for admission to the Program. Prospective applicants are encouraged to take Government 300 Major seminar in the fall semester of their junior year. Students may enroll in the Program for either two or three semesters, depending on when they are accepted and the period of time it takes them to complete the requirements. Applications should be submitted either by Friday, October 19, of the student's junior year, for spring admission; or by Friday, March 22, for admission the following fall. Students admitted in the spring of their junior year may complete the Program in either two or three semesters; those admitted in the fall of their senior year must finish in two semesters.

Candidates for the degree of Bachelor of Arts with honors in government will complete the normal requirements for a major in the Department, during which they must take Government 493 and 494.

[The Department of Government is now revising its Honors Program. For the academic year 1974-75, sophomores and juniors wishing to enter the Program may apply under the new procedure to the director of undergraduate studies, Room 130, McGraw Hall.]

Degrees with *cum laude*, *magna cum laude*, or *summa cum laude* in government will be recommended for students who successfully complete the Honors Program.

European Studies Concentration

Government majors may elect to group some of their required and optional courses in the area of European studies, drawing from a wide variety of courses in relevant departments. Students are invited to consult Professors Katzenstein, Scheinman, and Tarrow for advice concerning course selection, foreign study programs, etc.

Distribution Requirement

The distribution requirement in the social sciences is satisfied in government by taking two of the following courses: Government 111, 131, 161, and 181; or by taking one of 111, 131, 161, or 181 followed by a 300-level course in the same area.

111 American Government and Politics Fall term. Credit three hours. Open to all students with first preference to students in the College of Arts and Sciences. Lectures, T Th 2:30. Discussion sections to be arranged. T. J. Lowi.

Principles, problems, and processes in American political life.

131 Introduction to Comparative Politics Spring term. Credit three hours. Lectures, M W 2:30. Discussion sections to be arranged. E. G. Kenworthy.

An investigation of the foundations of politics under different political regimes: totalitarian governments and autocracy; the bases of political conflict; social movements and party systems; political processes and policy outcomes; revolutionary versus evolutionary change; political development in the Third World; the modern corporate state.

161 Introduction to Political Theory Spring term. Credit three hours. Open to all students. Lectures M W 10:10. Discussion sections to be arranged. W. J. Dannhauser.

A survey of the development of Western political theory from Plato to the present. Readings from the work of the major theorists; an examination of the relevance of their ideas to contemporary politics.

181 Introduction to International Relations Fall term. Credit three hours. Open to all students. M W 9:05 plus a third hour to be arranged. R. H. Rosecrance.

An introduction to the basic concepts and practice of international politics.

Freshman Seminars

As part of the Freshman Seminars Program, the Department of Government will offer the following two courses which, since they are equivalents of Government 111 and 131, may be counted toward the major.

112 American Government Either term. Credit three hours. A seminar version of Government 111. See above.

132 Comparative Government Either term. Credit three hours. A seminar version of Government 131. See above.

The Department of Government is also offering the following two courses as part of the Freshman Seminars Program.

118 Law and Society Fall term. Credit three hours. T Th 4:00-5:15. D. J. Danelski.

133 Japanese Studies Spring term. Credit three hours. T Th 10:10. T. J. Pempel.

An interdisciplinary seminar devoted to an analysis of modern Japan using history, art, politics, literature, and film. Will include guest lectures by other faculty members in their areas of specialization.

Honors Seminar

200 Honors Seminar See below under Honors Program.

Major Seminars

300 Major Seminars Either term. Credit four hours. Hours to be arranged. Every major in the Department is encouraged to take at least one major seminar during the junior or senior years. The topics of the seminars and the names of the faculty offering them each semester will be announced prior to the registration period. Forms are provided each semester to indicate seminar preferences. Nonmajors will be admitted, but government majors are given priority.

American Government and Institutions

No prerequisites for courses in this section, unless the course description indicates otherwise. Government 111 is recommended. Open to sophomores, juniors, and seniors unless specified otherwise.

311 Urban Politics Spring term. Credit four hours. Open to all students. Concurrent registration in Government 312 is recommended. Lectures M W F 10:10. D. E. Van Houweling.

An introduction to the processes and institutions of politics in United States cities. Analysis of several of the most significant problems facing urban areas and discussion of alternative solutions. The effects of the physical, institutional, and political environments and power relationships are emphasized.

312 Urban Studies Laboratory Spring term. (Will also be offered in fall term if there is a minimum registration of forty students.) Credit two hours. Prerequisite: previous or concurrent registration in Government 311 or consent of the instructor. W 7:00-11:00 p.m. D. E. Van Houweling.

Provides a laboratory experience to integrate knowledge and test alternative solutions to urban problems. A large scale computer simulation is used to provide the simulated urban environment. No previous experience with computing is necessary. A background in urban studies is desirable.

313 The Nature, Functions, and Limits of Law Spring term. Credit four hours. (Cross-listed with the Law School: Law 600. Credit three hours.) M W F 2:30. K. Clermont.

Though taught by a Law School faculty member, this is not a course for professional law students. It is a general education survey course for nonlaw students at the sophomore level and up. Law is presented not as a body of rules but as a set of varied techniques for dealing with such social problems as securing a

healthy environment, keeping community peace, reinforcing the family, protecting basic freedoms, assuring some equality of opportunity, and controlling officials of the legal system. Consideration is given to the nonlegal factors bearing on the effectiveness of law. The limitations of law are stressed. Course materials consist mainly of judicial opinions, statutes, and other primary sources. Extensive use will be made of discussion techniques, but there will be some lecturing as well.

316 The American Presidency Fall term. Credit four hours. M W 10:10. Discussion sections to be arranged. M. V. Nadel.

Analysis of the politics of the presidency and the executive branch with emphasis on executive-legislative relations, executive branch policy making, and the problems of the modern presidency.

317 Political Parties and Elections Spring term. Credit four hours. T Th 2:30-3:45. B. Ginsberg.

Examines the functions and structures of American political parties and their role in election outcomes. Examples of topics are: party as organizer of citizens' opinions and attitudes, as mobilizer of political activities, as link between rulers and ruled, as mechanism for leadership recruitment, as bridge between different structures in the political system, and as influence on policy outputs. Discussions of recent changes (and/or nonchanges) in the structure and functioning of American parties and in electoral mechanics and dynamics.

318 The American Congress Spring term. Credit four hours. M W F 11:15.

An intensive study of politics and policy formation in Congress. Special emphasis on the problems of the representative assembly in the twentieth century.

319 American Political Behavior Fall term. Credit four hours. M W 1:25-2:40. R. Weissberg.

This course examines the political beliefs and behavior of Americans. Particular attention will be given to the nature and distribution of ideology, the reasons for differential political participation, and of such collective behavior as riots and mass movements.

320 Public Opinion and American Democracy Spring term. Credit four hours. T Th 11:15-12:45. R. Weissberg.

An analysis of the political beliefs of Americans in the context of alternative democratic theories. Examination of the ways Americans acquire their beliefs and the consequences (if any) of these beliefs for public policy. The goal will be to appraise existing opinion formation and implementation in terms of the requirements of alternative democratic theories.

321 The Politics of American Economic Life Spring term. Credit four hours. M W 10:10. Discussion sections to be arranged. M. V. Nadel.

This course examines the relationship between politics, public policy, and certain characteristics of the

American political system. Substantive policy areas will include the distribution of economic benefits and burdens, business-government relations, the energy crisis, and the political role of giant corporations.

322 Criminal Justice and Public Policy Fall term. Credit four hours. T Th 9:05-10:20. B. Ginsberg.

Crime and law enforcement are major political issues and involve important questions of public policy. This course will examine selected aspects of the distribution of justice in American society. It will focus on the institutional structure of the criminal justice system, the uses of law as an instrument of social control, and the foundations and implications of alternative policy choices.

323 Public Administration: The Fourth Branch Spring term. Credit four hours. M W F 10:10. A. T. Dotson.

An examination of the national administrative branch. Particular attention will be given to the constitutional and political problems which result from the rise of administrative power.

324-325 Law and Social Science Throughout the Year. Credit four hours a term. Open, upon application, to students beginning their junior year. Registration limited to fifteen students in 1974-75. Time to be arranged. D. J. Danelski, S. D. Resnick, and C. A. Sheingold.

An intensive, interdisciplinary seminar that views law and its operation in society from the perspectives of several of the social sciences. Students are expected to take both terms of the seminar. During the first term, the seminar will focus on the basic literature concerning law and social science, and students will write a series of short analytical papers. During the second term, the seminar will focus on research problems, and students will write research papers. Usually each seminar will be conducted by faculty members representing two or more disciplines.

327 Civil Liberties in the United States Fall term. Credit four hours. T Th 10:10. Discussion sections to be arranged. D. J. Danelski.

An analysis of contemporary issues in civil liberties and civil rights, with emphasis on Supreme Court decisions. Cases will be analyzed in terms of democratic theory and the social and political context in which they arose.

[328 Constitutional Politics Fall term. Credit four hours. D. J. Danelski. Not offered in 1974-75.]

329 Politics, Race, and Education Spring term. Credit four hours. T Th 2:30-3:45. E. W. Kelley.

The political role of education in organizing and preparing individuals for expected social and economic roles is considered. Educational and occupational barriers to entry as well as the actual causes of academic success are emphasized. The use of race as an overt and covert criterion for segregating individuals into different social and economic roles as well

as other aspects of institutional racism will be dealt with.

Comparative Government

No prerequisites for courses in this section, unless course description indicates otherwise. Government 131 is recommended. Open to sophomores, juniors, and seniors unless specified otherwise.

[330 Politics and Society in England: 1640 to the Present] Credit four hours. I. Kramnick. Not offered in 1974-75.]

331 Indochina (also Asian Studies 304) Fall term. Credit four hours. M W 11:15-12:30. G. McT. Kahin.

The modern political development of Cambodia, Laos, and Vietnam. Attention will be given to the efforts of outside powers, especially France and the United States, to control and shape this process.

332 Society and Politics in France and Italy Credit four hours. Time and instructor to be announced.

333 Government and Politics of the Soviet Union Fall term. Credit four hours. M W F 12:20. M. Rush.

A focus on the politics of the top leaders, the institutions through which they operate, and the impact of their policies on the Soviet people. Emphasis also on phases in the development of the Soviet system and on the ways in which the Soviet Union served as the prototype of all subsequent Communist states, as well as on the variant forms that have appeared in other states.

335 Comparative Local Politics Fall term. Credit four hours. M W F 9:05. D. E. Ashford.

Comparative analysis of the problems of local autonomy, local policy formation, and local participation in several European and developing political systems. The conceptual focus will be on centralization of authority in modern and developing societies, and how its effect has been to reduce the viability of local government. Attention will be given in particular to the systemic implications of centralization, especially for democracies, and the decreasing importance of policy choice at the local level. Exercises are conducted using national samples of urban government and policy data from Britain, France, the United States, and one or more developing countries.

336 The Ethnic Dimension in Politics Fall term. Credit four hours. T Th 2:30-3:45. M. J. Esman.

The expression and regulation of political conflicts arising from ethnic, linguistic, racial, and religious pluralism. The political problems of communally divided societies are examined in a comparative perspective with emphasis on the patterns of conflict, coexistence, and cooperation among members of distinctive communal groups. Data are drawn and propositions are tested against the experience of se-

veral countries including Canada, Malaysia, South Africa, and Yugoslavia as well as the United States.

338 Politics and Modernization Fall term. Credit four hours. M W F 11:15. A. T. Dotson.

A comparative study of the political development of Third World nations. Particular attention is given to selected cases. The political implications of the "gap" between advanced and backward states is examined critically.

340 Government and Politics of Latin America Fall term. Credit four hours. M W 1:25-2:40. E. G. Kenworthy.

An introduction to the national politics of the larger nations in recent decades, offering alternative conceptions of power relations (e.g., pluralist, oligarchic). While external influences are not ignored, the focus is upon domestic politics.

341 The National and the Social Question in Central Europe Spring term. Credit four hours. T Th 10:10-11:25. P. Katzenstein.

An analysis of the political, social, economic, and cultural differences and similarities of the Federal Republic, the GDR, and Austria since 1945. Focus will be on the consequences of the fragmentation of a unified Germany.

[344 Government and Politics of Southeast Asia] Fall term. Credit four hours. M W F 10:10. B. R. O'G. Anderson. Not offered in 1974-75.]

346 Politics in Contemporary Japan Spring term. Credit four hours. M W 2:30-3:45. T. J. Pempel.

The course will deal with the political, social, and economic delimiters of public policy in modern Japan. Topics will include ideological cleavage, class conflict, urban-rural gaps, political institutions, the consumer's movement, military policy and economic penetration of neighboring countries.

347 Chinese Government and Politics Fall term. Credit four hours. M W F 10:10. D. P. Mozingo.

An examination of the politics of modern China including the breakdown of the traditional order and the revolutionary struggle of the Chinese Communist party. Primary emphasis on the institutions, methods, policies, and problems of the Communist regime since 1949.

348 Politics of Industrial Societies Fall term. Credit four hours. M W F 9:05. T. J. Pempel.

The course will focus on the major industrial democracies, analyzing the various paths taken to industrialization, and the political and normative problems these countries have faced as a result.

[349 Political Role of the Military] Spring term. Credit four hours. M W F 10:10. B. R. O'G. Anderson. Not offered in 1974-75.]

350 Comparative Revolutions Fall term. Credit four hours. T Th 10:10-11:25. D. P. Mozingo.

An analysis of major revolutionary movements since World War II—China, Indonesia, Cuba, Algeria, Vietnam; their social-political origins, ideology, and organization, with special emphasis on contrasting strategies and roads to power. Ordinarily an oral final exam will be given at the close of the course.

351 India: A Political Experiment Fall term. Credit four hours. T Th 9:05-10:20. M. Katzenstein.

The course will consider whether the goals of national unity, rapid economic growth, and social equality can be realized through democratic means.

354 The Politics of Population Spring term. Credit four hours. T Th 2:30-3:45. M. Katzenstein.

Political problems and approaches on questions of population. Topics to be considered will include birth control and population expansion policies, immigration and brain drain, education, attempts at cultural standardization and assimilation in multilingual societies, and alternative land tenure systems.

355 From Politics to Policy: The Political Economy of Choice Fall term. Credit four hours. T Th 2:30-3:45. N. T. Uphoff.

Examination of the realities, dilemmas, and strategies of policymakers in the United States, the Third World, and international relations. The environment of political action and policy choice will be considered analytically from the perspective of actors and choosers, using the framework of a new political economy. The framework will be applied in particular to school desegregation in Virginia and Chicago, the Mexican Revolution's making and implementation, and to policymaking on Vietnam.

356 Elites and Society: The Political Economy of Power Spring term. Credit four hours. M W 2:30-3:45. N. T. Uphoff.

For students who have an interest in the nature and uses of power in politics. Consideration of how power has been treated by earlier political thinkers and by contemporary social scientists. The contending arguments about elitism, pluralism, and populism will be examined with reference to power in American, Third World, and international politics. The aim of this approach will be to consider the implications of different distributions and bases of power for the making of public policy.

357 Political Development in Western Europe Spring term. Credit four hours. M W 2:30-3:45. S. Tarrow.

The emergence of the Western European nation-state; the extension of citizenship rights to the lower classes; the integration of regions, institutions, and classes into the modern state; and the recent development of mechanisms for ensuring compliance and economic welfare. Students will prepare research pa-

pers on selected aspects of development in Western Europe in consultation with the instructor.

Political Theory

No prerequisite for courses in this section, unless course description indicates otherwise. Government 161 is recommended. Open to sophomores, juniors, and seniors unless specified otherwise.

[360 Greek Political Philosophy Fall term. Credit four hours. Hours to be arranged. W. J. Dannhauser. Professor Dannhauser will be on leave fall 1974; students should check in the department office for possible substitution.]

[361 Liberalism and Its Critics Fall term. Credit four hours. M W F 1:25. I. Kramnick. Professor Kramnick will be on leave 1974-75; students should check in the department office for possible substitution.]

[362 Revolutions and Revolutionary Theory Spring term. Credit four hours. M W F 1:25. I. Kramnick. Professor Kramnick will be on leave 1974-75; students should check in the department office for possible substitution.]

363 Classics in Politics Thought Spring term. Credit four hours. Designed to complement Government 161 but may be taken independently. M W F 11:15. W. J. Dannhauser.

Close textual analysis of a select number of basic texts in political thought. Topic for 1975 to be announced.

364 Basic Problems in Political Theory Fall term. Credit four hours. M W 2:30-3:45. S. D. Resnick.

Problems of moral responsibility and politics in the modern democratic state.

365 Ideologies and Social Movements Fall term. Credit four hours. M W 2:30-3:45. S. Tarrow.

The relationship between thought and action in modern social movements like liberalism, socialism, and nationalism; the social and psychological bases of mass belief systems; the political uses of symbolism; ideology and political development; authoritarianism and democracy in modern and modernizing states.

[366 Human Nature and Political Theory Fall term. Credit four hours. W F 2:30-3:45. S. D. Resnick. Not offered in 1974-75.]

367 The Logic of Liberalism Spring term. Credit four hours. M W F 1:25. E. J. Eisenach.

An examination of Anglo-American liberal political thought. Stress will be placed on the legal, psychological, economic, and religious justifications of liberal politics.

368 Economic Models of Politics Fall term. Credit four hours. T Th 9:05-10:20. E. W. Kelley.

Both economic factors influencing the structure of political systems and economic models of such systems will be considered. The rationalistic presumptions underlying some such models will be introduced and modified. There will be applications to enduring policy arenas.

374 Political Authority in Mass Society Fall term. Credit four hours. T Th 11:15-12:30. E. J. Eisenach.

Eighteenth- and nineteenth-century origins of ideology and mass man. Theories of the disintegration of political authority in the nineteenth and twentieth centuries; mass society as political pathology. Modern elitist theory as a response to mass society.

375 American Political Thought Spring term. Credit four hours. M W F 9:05. E. J. Eisenach.

Survey of American political thought with stress on puritan thought, constitutional theory, selected nineteenth-century literature, and contemporary political science.

376 Marx and Socialist Thought Fall term. Credit four hours. M W F 12:20-1:10.

An examination of the writings of Karl Marx and the socialist tradition of the nineteenth and twentieth centuries.

International Relations

No prerequisites for courses in this section, unless course description indicates otherwise. Government 181 is recommended. Open to sophomores, juniors, and seniors unless specified otherwise.

381 Foreign Policy of the U.S.S.R. Spring term. Credit four hours. M W F 12:20. M. Rush.

An analysis of Soviet foreign policy as it developed out of the revolution and accommodated to the prevailing international system, with a focus on the period since 1945. Particular topics include: causes and prospects of the cold war, impact of nuclear weapons on Soviet defense and foreign policy, sources and goals of Soviet hegemony in East Europe, causes of the dispute with China, and impact of domestic politics on the formation of foreign policy.

382 Imperialism Fall term. Credit four hours. M W F 10:10. E. G. Kenworthy.

A critical reading of modern conceptions of imperialism as contributed by writers of various disciplines and ideologies. The empirical validity of these conceptions will be judged by examining the several ways by which the U.S. interacts with Latin America, with less attention given the international relations of other great powers.

383 Theories of International Relations Spring term. Credit four hours. M W F 9:05. R. Rosecrance.

A survey of relevant theories of international relations emphasizing war prevention and conflict resolution.

Theories will be tested against the international experience of the past two centuries.

[384 Defense Policy and Arms Control (also Science, Technology, and Society 384)] Spring term. Credit four hours. T Th 2:30-3:45. F. A. Long and G. H. Quester. Not offered in 1974-75.]

385 Contemporary American Foreign Policy Spring term. Credit four hours. M W F 11:15. R. Rosecrance.

An analysis of the dilemmas which confront American foreign policy at the present time, both individual problems and more general questions of capabilities, priorities, and morality. The frame of reference will be the period since 1945.

387 The United States and Asia Spring term. Credit four hours. M W F 10:10. G. McT. Kahin.

An analysis of the relations of the United States with the major states of Asia and with those smaller countries (especially Vietnam) with which it is particularly concerned; attention is also given to the relationship of American policy to the Asian policies of France, Great Britain, and Soviet Russia.

388 The United States and Western Europe Fall term. Credit four hours. M W F 1:25. L. Scheinman.

An examination of the changing transatlantic relationships as a problem in theory and as an issue for policy. The topics covered will include: the impact and future of European integration, detente and *Ostpolitik*, economic interdependence and the role of multinational corporations, monetary issues, cultural penetrations, problems of defense and arms control, the relative decline in American power, and the ways in which diplomacy tries to accommodate these pressures.

389 International Law Fall term. Credit four hours. M W F 11:15. L. Scheinman.

Deals with the characteristics of international law, its theoretical foundations, its principles and processes, and its relationship to international politics. Emphasis is placed on law-in-action and attention is addressed both to traditional problems—intervention, coercion, the scope and limits of adjudication—and to contemporary trends and processes (arms control, outer space, exploitation of seabed resources, the individual in international law, and cooperative patterns in socioeconomic relations at the global and regional level). Content may vary according to events in the international system.

390 The Foreign Policy of China Spring term. Credit four hours. T Th 10:10-11:25. D. P. Mozingo.

An analysis of the basic interests, attitudes, and concepts which have shaped the People's Republic of China's foreign policy down to the present. Principle topics include: historical and ideological foundations of foreign policy development since 1949, major problem areas (e.g., relations with Russia, India, Southeast Asia and Japan, views on nuclear weap-

ons and arms control, Third World revolutions and the current Sino-U.S. thaw).

Political Methodology

All courses in this section are open without prerequisites to sophomores, juniors, and seniors, unless course description indicates otherwise.

[391 Human and Social Statistics] Credit four hours. E. W. Kelley. Not offered in 1974-75.]

Honors Courses

See earlier note on Honors Program, p. 102.

200 Honors Seminar (To be offered under revised program referred to above.) Spring term. Credit three hours. Prerequisites: restricted to second-semester sophomores who have completed two introductory government courses with a B+ or better average and consent of the instructor. Successful completion of Government 200 may be used as substitute for third introductory course requirement for government majors. Staff.

Critical study of problems, issues, and concepts central to normative and empirical political enquiry and the relationships between them.

493 Honors Tutorials Either term. Credit four hours. The tutorials involve weekly sessions with professors specializing in fields closest to the student's interests. The tutorials call for periodic papers and intensive reading.

494 The Honors Thesis Either term. Credit eight hours. The honors thesis is the major academic obligation undertaken by the student during the final year at the University. The final deadline for theses is the last day of class instruction in the semester of theses writing. All candidates for honors will be given and oral examination on their theses.

Supervised Study

Juniors and seniors majoring in government who have superior grade records may apply for supervised study in government with a particular instructor. The applicant must present a well-defined program of study that cannot be satisfied by taking regular courses. Emphasis will be placed on the capacity to subject a body of related readings to analysis and criticism. The consent of the instructor is required.

499 Readings Either term. Credit variable (one to six hours). Staff.

Graduate Seminars

For complete descriptions of graduate courses see the *Announcement of the Graduate School: Course Descriptions*. Qualified undergraduates are encouraged to apply for seminars listed with 600 course

numbers. For courses not listed in the graduate catalog, consult the lists prepared by the graduate field representative.

History

M. G. Kammen, chairman; D. A. Baugh, A. H. Bernstein, S. Blumin, S. G. Cochran, E. W. Fox, A. Grafton, H. E. Guerlac, T. H. Holloway, C. A. Holmes, J. J. John, S. L. Kaplan, D. C. LaCapra, W. F. LaFeber, R. L. Moore, M. B. Norton, C. A. Peterson, W. M. Pintner, R. Polenberg, W. B. Provine, J. H. Silbey, F. Somkin, B. Tierney, J. Weiss, L. P. Williams, O. W. Wolters, D. K. Wyatt

For admission to the history major a student must have completed Introduction to Western Civilization, and have earned grades of C or better in this and in any other history course taken. Students who have completed only the first semester of the Introduction to Western Civilization, with a grade of C or better, may be provisionally admitted to the major. Prospective majors should apply for admission at the Department of History office. In fulfillment of the major requirement a student must take twenty-eight hours of history courses numbered 200 or above. Of the twenty-eight hours, sixteen must be in courses numbered above 300, and, of these sixteen, eight must be in one particular field of history (e.g., American, ancient, Latin American, early modern European). To complete the major a student must also take two courses above the elementary level offered by other departments that relate to the eight-hour concentration in one particular field of history.

The Honors Program

Candidates for the degree Bachelor of Arts with honors in history should consult with R. L. Moore during the spring term of their sophomore year and enroll in the Honors Program. The minimum requirements for admission to candidacy for honors are (1) a cumulative average of B- or better in all courses; (2) a cumulative average of B or better in courses in the humanities and social sciences; (3) enrollment and outstanding performance in at least one history course before the spring term of the sophomore year.

An honors candidate will take the history proseminar (History 400) during the fall semester of the junior year. In the spring students will take at least one advanced history course entailing frequent discussions and considerable writing under supervision. During the fall term of the senior year candidates may register, if they wish, for History 301 or 302 to explore the field of their prospective honors essay. During the spring term of the senior year candidates will register for a four-hour course in order to complete and prepare to defend the honors essay and their general work in history (History 401).

The text of the honors essay may not exceed sixty pages except by permission of the chairman of the Honors Committee and the student's adviser. Two copies will be due during the penultimate week of April. One copy will be returned with the readers' comments. In May, each honors candidate will be given a thirty-minute oral examination, administered by the major adviser and one or both of the essay readers. The examination will ordinarily be concerned with the broad field of the essay (e.g., Periclean Athens, seventeenth-century science, nineteenth-century France).

The purpose of the Honors Program is to give unusually able students an opportunity to do independent work under close faculty supervision. Special courses taken during the junior and senior years (301, 302, 400, and 401) may be counted toward the twenty-eight hours in history required of a major. Evidence to be considered in awarding the Bachelor of Arts with honors in history will include (1) grades earned in all history and related courses; (2) readers' reports on the honors essay; and (3) performance on the senior oral examination.

Distribution Requirement

The distribution requirement in history is satisfied by any one-year sequence in history 100- through 300-level courses.

American History

115-116 American History 115 fall term only; 116 spring term only. Credit three hours a term. First term not prerequisite to the second. T Th S 9:05. Fall term, S. Blumin and J. Silbey. Spring term, W. F. LaFeber and R. L. Moore.

Several major topics will be considered each term, and different modes of historical inquiry will be used. A primary purpose will be to give the student opportunities to make his or her own historical judgments and analyze those made by others. These aims will be pursued through weekly seminar work and frequent short essays. There will be one lecture and two discussion sessions each week.

Note: freshmen may count either term or both toward satisfaction of the freshman seminars requirement.

215-216 Freshman Seminar in American History Either term. Credit three hours. For students with strong background in American history. Consent of instructor required. Independent sections. Fall term: Th 2:30-4:25. F. Somkin. Spring term: T 2:30-4:25. R. Polenberg.

One or several themes will be studied in some depth. Fall term: the American temper. Leading American ideas and themes from the Revolution to the twentieth century, with emphasis upon the nineteenth century. Spring term: civil liberties in America. Political, social, and religious dissent in America from

Jefferson's time to the present, but with emphasis on the twentieth century.

311-312 The Structure of American Political History 311 Fall term only; 312 spring term only. Credit four hours a term. History 311 not prerequisite to History 312. T Th 10:10 and one hour to be arranged. J. H. Silbey.

A systematic examination of the course of American politics since 1787, focussing on the nature of leadership, decision making, popular and legislative voting behavior, and the role of interest groups, political parties, and political elites in shaping our political history. The first semester ends with the Civil War. The second semester surveys 1865 to the present.

313-314 History of American Foreign Relations 313 fall term only; 314 spring term only. Credit four hours a term. First term not prerequisite to the second. T Th S 11:15. W. F. LaFeber.

First semester surveys 1750-1912, beginning with the world of Benjamin Franklin and ending with that of Willard Straight. The second semester surveys 1912 to the present. Special emphasis is placed on domestic changes and how these influenced the formulation of American foreign policy.

[316 American Cultural and Intellectual History to 1820] Credit four hours. M W F 10:10. F. Somkin. Not offered in 1974-75.]

317 American Cultural and Intellectual History, 1820-1890 Fall term. Credit four hours. M W F 10:10. F. Somkin.

Deals with major American ideas, movements, and thinkers. Topics include: the conflict between social ideals and actualities, the individual against society; the quest for redemption and national purification through reform movements such as temperance, women's rights, communitarianism, Mormonism, and antislavery; the impact of science and evolution on American culture; the Gospel of Wealth; the rise of originality and radicalism in art and social thought.

[318 American Constitutional Development] Spring term. Credit four hours. M W F 9:05. M. B. Norton. Not offered in 1974-75.]

321 The Origins of American Civilization Spring term. Credit four hours. M W F 2:30. M. G. Kammen.

The European and colonial genesis of American culture and society, with emphasis upon the emergence of distinctive institutions, attitudes, and social patterns. Topics include race relations, theology and ecclesiastical organization, politics, movements of social protest, and patterns of economic growth.

[325 Age of the American Revolution, 1763-1815] Fall term. Credit four hours. T Th 1:25-3. M. B. Norton. Not offered in 1974-75.]

[330 The United States in the Middle Period, 1815-1850] Fall term. Credit four hours. T Th 10:10, third hour to be arranged. J. H. Silbey. Not offered in 1974-75.]

[331 The American Civil War and Reconstruction] Spring term. Credit four hours. T Th 10:10. Third hour to be arranged. J. H. Silbey. Not offered in 1974-75.]

332-333 The Urbanization of American Society 332 fall term only; 333 spring term only. Credit four hours a term. First term not prerequisite to the second. M W 11:15 and discussion section to be arranged. S. Blumin.

An examination of the process of urbanization in America from the earliest European settlements to the present. Emphasis will be placed on the development of urban forms, institutions, and life styles, and on the changing impact of cities upon nonurban areas and the nation as a whole. Historical readings will be supplemented by selected theoretical works on urbanism, urbanization, and community, and a number of slide lectures will help depict the developing urban milieu. The first term will cover the period up to the emergence of the industrial city (c. 1850); the second term will cover the period from 1850 to the present.

[334 Nationalism and Nostalgia in American Life, 1870-1930] Fall term. Credit four hours. M W 1:25-3:20. Consent of the instructor required. M. G. Kammen. Not offered in 1974-75.]

340-341 Recent American History, 1917 to the Present 340 fall term only; 341 spring term only. Credit four hours a term. First term not prerequisite to the second. Lectures T Th 12:20 and discussion sections to be arranged. R. Polenberg.

Fall term topics include progressivism and dissent in the First World War; cultural conflict in the 1920s, the social impact of the depression, Franklin Roosevelt and the New Deal, domestic and diplomatic aspects of World War II. Spring term topics include social reform from the Fair Deal to the New Frontier, civil liberties and civil rights, society and thought in the 1950s, the political and social impact of the war in Vietnam.

345 The Modernization of the American Mind Fall term. Credit four hours. M W 11:15 and discussion hour to be arranged. Open to sophomores. R. L. Moore.

American thought and culture from 1890 to the present. Course emphasizes ideas in the context of a Western intellectual community (the reception of Marx, Freud, Einstein), the cultural impact of major political and economic events (war, depression), and the adaptation of social ideas and values to new conditions (urbanism, ethnic pluralism, the proliferation of technology).

346 The Irrational and the American Mind Spring term. Credit four hours. M 11:15, W 11:15-1. Students should have taken a course in contemporary American intellectual history. R. L. Moore.

The meaning and interpretation of reason in twentieth century America. Course focuses on reinterpretations of (and challenges to) the ideas of rational man and rational technology offered by psychologists, natural scientists, social scientists, theologians, and literary figures. Readings range from William James to Norman Mailer.

[411 Problems in American Political History] Spring term. Credit four hours. Prerequisite: consent of the instructor. T 2:35-4:25. J. H. Silbey. Not offered in 1974-75.]

413 Readings in Nineteenth Century American Foreign Relations Spring term. Credit two hours. Prerequisites: consent of the instructor and History 313. Hours to be arranged for classes on Tuesday or Thursday afternoons. W. LaFeber.

414 Motivations of American Foreign Policy Fall term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged for classes on Tuesday and/or Thursday afternoons. W. LaFeber.

Fall term topic: Americans and twentieth-century revolutions.

[416 Undergraduate seminar in American Cultural History] Spring term. Credit four hours. Prerequisite: consent of instructor. T 3:35-5:30. F. Somkin. Not offered in 1974-75.]

418 Undergraduate Seminar in the History of the American South Spring term. Credit four hours. Prerequisite: consent of the instructor. T 2:30-4:25. J. Silbey.

Topic for 1975: the origins of the "Solid South" in American politics, 1840-1896.

[426 Undergraduate Seminar in Early American History] Spring term. Credit four hours. Prerequisite: consent of the instructor. T 1:25-3:15. M. B. Norton. Not offered in 1974-75.]

440 Undergraduate Seminar in Recent American History Fall term. Credit four hours. Prerequisite: consent of the instructor. T 2:30-4:20. R. Polenberg.

Topic for 1974: John F. Kennedy and the New Frontier.

[445 Undergraduate Seminar: Deviance and Conformity in the American Past] Fall term. Credit four hours. T 3-5. R. L. Moore. Not offered in 1974-75.]

[613-614 Seminar in the History of American Foreign Relations] 613 fall term only; 614 spring term only. Credit four hours a term. For graduate students only. Hours to be arranged. W. F. LaFeber. Not offered in 1974-75.]

[615 Seminar In American Cultural and Intellectual History] Fall term. Credit four hours. Hours to be arranged. F. Somkin. Not offered in 1974-75.]

[616 Seminar In American Cultural and Intellectual History] Spring term. Credit four hours. Hours to be arranged. F. Somkin. Not offered in 1974-75.]

[617 Seminar In Recent American Cultural History] Fall term. Credit four hours. Hours to be arranged. Reading and research. R. L. Moore. Not offered in 1974-75.]

[618 Seminar In Recent American Cultural History] Spring term. Credit four hours. Hours to be arranged. Reading and research. R. L. Moore.

619-620 Seminar In American Social History 619 fall term only; 620 spring term only. Credit four hours a term. Hours to be arranged. S. Blumin.

621-622 Seminar In American History 621 fall term only; 622 spring term only. Credit four hours a term. Hours to be arranged. M. G. Kammen.

[633-634 Seminar In Nineteenth-Century American History] 633 fall term only; 634 spring term only. Credit four hours a term. Hours to be arranged. J. H. Silbey. Not offered in 1974-75.]

[640 Seminar In Recent American History] Fall term. Credit four hours. Hours to be arranged. R. Polenberg. Not offered in 1974-75.]

[641 Seminar In Recent American History] Spring term. Credit four hours. Hours to be arranged. R. Polenberg. Not offered in 1974-75.]

710 Colloquium In American History Fall term. Credit four hours. Required of all entering graduate students in American history. M 3:35-5:25. Staff.

Asian History

190 Introduction to Asian Civilizations: Origins to 1600 Spring term. Credit three hours. T Th 11:15; discussion sections to be arranged. C. A. Peterson and O. W. Wolters.

Examination of central topics in the histories of China, Japan, India, and Southeast Asia, including indigenous beliefs and their development, often under outside influence; the political entities formed—their kinds and evolution; bases for social distinctions; relations with neighboring cultures; and general characteristics on the eve of extensive contact with the West.

191 Introduction to Asian Civilizations: from 1600 Fall term. Credit three hours. T Th 11:15; discussion sections to be arranged. S. G. Cochran.

A survey of central themes in the modern histories of China, Japan, India, and Southeast Asia. After general consideration of the intrusion of European imperialism, the course focuses attention upon the intellectual, social, political, and economic transfor-

mations of the region prior to World War II, and the consequences which followed the war.

[393 History of China Up to Modern Times] Fall term. Credit four hours. Open to sophomores. T Th 10:10; discussion sections to be arranged. C. A. Peterson. Not offered in 1974-75.]

394 History of China In Modern Times Spring term. Credit four hours. Open to sophomores. T Th 10:10; discussion sections to be arranged. S. G. Cochran.

China under the last imperial dynasty (1644-1912) and in its twentieth-century search for a new civilization.

395 Southeast Asian History to the Fourteenth Century Fall term. Credit four hours. T Th S 11:15. O. W. Wolters.

A survey of early Southeast Asian history with particular reference to questions raised in the source material concerning religious beliefs and political and social assumptions.

[396 Southeast Asian History from the Fifteenth Century] Spring term. Credit four hours. Prerequisite: History 191, 395, or consent of the instructor. T Th 11:15-12:30. D. K. Wyatt. Not offered in 1974-75.]

492 Undergraduate Seminar In Medieval Chinese History Spring term. Credit four hours. Prerequisite: History 190, 393, or consent of the instructor. Th 1:25-3:20. C. A. Peterson.

Takes up selected topics in the history of Chinese culture and society between the seventh and thirteenth centuries.

493 Self and Society In Late Imperial and Twentieth-Century China Fall term. Credit four hours. Prerequisite: History 191, 394, or consent of the instructor. Hours to be arranged. S. G. Cochran.

Conceptions of self and relationships between the individual and society in China from Ming times to the present.

[497 Undergraduate Seminar In Southeast Asia in the Nineteenth Century] Fall term. Credit four hours. Prerequisite: History 396 or 191 or consent of the instructor. M 1:25-3:30. D. K. Wyatt. Not offered in 1974-75.]

498 Undergraduate Seminar In Southeast Asian History Fall term. Credit four hours. Prerequisite: History 395 or consent of the instructor. W 1:25-3:30. O. W. Wolters.

Systematic consideration of selected problems and episodes in Southeast Asian history, utilizing indigenous historical sources in translation and relevant secondary sources.

[691 Chinese Historiography and Source Materials] Fall term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. C. A. Peterson. Not offered in 1974-1975]

693-694 Problems in Modern Chinese History 693 fall term only; 694 spring term only. Credit four hours a term. Prerequisite: History 394 for the fall and History 693 for the spring, or consent of the instructor. Hours to be arranged. S. G. Cochran.

A discussion seminar in the fall and a research seminar in the spring.

695-696 The Historiography of Southeast Asia Throughout the year. Credit four hours a term. Prerequisite: consent of the instructor. Hours to be arranged. O. W. Wolters.

791-792 Seminar in Medieval Chinese History Throughout the year. Credit four hours a term. Hours to be arranged. C. A. Peterson.

793-794 Seminar in Modern Chinese History Throughout the year. Credit four hours a term. Hours to be arranged. S. G. Cochran.

795-796 Seminar in Southeast Asian History Throughout the year. Credit four hours a term. Hours to be arranged. O. W. Wolters.

European History

151-152 Introduction to Western Civilization 151 fall term only; 152 spring term only. Credit four hours a term. First term prerequisite to the second except with consent of the instructor. M W F 10:10. D. Baugh, C. Holmes, and J. Weiss.

A survey of European history since antiquity. Attention is given equally to the major political and social developments and to the intellectual heritage of the West. A considerable portion of the reading is in contemporary sources. Freshmen may count either term or both toward satisfaction of the freshman seminars requirement.

171 Freshman Seminar: Revolution and Society in Russia Spring term. Credit three hours. M W 2:30-3:45. W. Pintner.

This course will examine the state's attempts to maintain stability, and the tension between the dissenting intelligentsia and the mass of the population. Both pre- and post-1917 Russia will be discussed.

Ancient European History

261-262 Classical Antiquity 261, classical Greece, fall term only; 262, ancient Rome, spring term only. Credit three hours a term. First term not prerequisite to the second. Lectures T Th 10:10. One weekly discussion section at any of the following times: T or Th 11:15; T or Th 1:25. R. Tannenbaum.

261 will deal with such problems as the rise of the polis, the birth of philosophy and humanism, the origins and development of democracy, liberal and con-

servative attitudes in fifth- and fourth-century political thought, and the final crisis of confidence in the Hellenistic period. Portions of Homer, Aeschylus, Sophocles, Euripides, Aristophanes, Herodotus, Thucydides, Plato, and Aristotle will be read in translation. 262 will deal with such problems as Roman imperial expansion, the Roman revolution, the maintenance of autocracy, and the decline and fall of the Roman empire.

[461 The Roman Revolution, 146-44 B.C.] Fall term. Credit four hours. Prerequisite: History 262 or consent of the instructor. Hours to be arranged. An undergraduate seminar. Enrollment limited to twenty-five students. A. H. Bernstein. Not offered in 1974-75.]

[462 Early Imperial Rome, 44 B.C.-A.D. 70] Spring term. Credit four hours. Prerequisite: History 262 or consent of the instructor. A. H. Bernstein. Not offered in 1974-75.]

[463 Classical Greece, 510-404 B.C.] Spring term. Credit four hours. Prerequisite: History 261 or consent of the instructor. Hours to be arranged. An undergraduate seminar. Enrollment limited to twenty-five students. A. H. Bernstein. Not offered in 1974-75.]

[464 Classical Greece, 404-338 B.C.] Spring term. Credit four hours. Prerequisite: History 261 or consent of the instructor. A. H. Bernstein. Not offered in 1974-75.]

465 The Greek Enlightenment: Explorations in Cultural History Fall term. Credit four hours. Prerequisite: History 261 or consent of the instructor. An undergraduate seminar. Enrollment limited to twenty-five students. Hours to be arranged. R. Tannenbaum.

466 Fall of the Roman Empire in the Light of Comparative History Spring term. Credit four hours. Prerequisite: History 262 or consent of the instructor. An undergraduate seminar. Enrollment limited to twenty-five students. Hours to be arranged. R. Tannenbaum.

[661-662 Seminar in Ancient Classical History] Throughout the year. Credit four hours a term. Hours to be arranged. A. H. Bernstein. Not offered in 1974-75.]

Medieval and Early Modern European History

257 English History from Anglo-Saxon Times to the Revolution of 1688 Fall term. Credit three hours. M W F 12:20. C. A. Holmes.

A survey of the government, social organization, and cultural and religious experience of the English people of the period, laying particular stress on the administrative and legal unification of the realm, the rise of representative institutions, and changes in agrarian organization, and the development of urban and commercial classes.

263 The Earlier Middle Ages Spring term. Credit three hours. M W F 12:20. J. J. John.

A survey of medieval civilization from c. 300 to c. 1100, dealing with religious, intellectual, political, and economic developments in Western Europe.

264 The High Middle Ages Fall term. Credit four hours. T Th 10:10-11:25. B. Tierney.

A survey of medieval civilization from c. 1100 to c. 1450. The main trends of political, religious, intellectual, and economic development will be considered.

359 The Early Development of the Anglo-American Common Law Spring term. Credit four hours. Prerequisite: History 257 or consent of the instructor. M W F 10:10. C. A. Holmes.

A survey of the English legal system from the Anglo-Saxon period to the age of Blackstone. The class will consider the development and powers of such legal institutions as the central courts, the itinerant judges, the sheriffs, the justices of the peace, and jury trial; the relationship between precedent, equity, and positive legislation in English law; and those constitutional conflicts between the crown, the judiciary, and Parliament which vitally affected the nature of the system.

[365 Medieval Culture, 400-1150] Spring term. Credit four hours. Prerequisite: History 263 or consent of the instructor. T Th 1:25-2:40. J. J. John. Not offered in 1974-75.]

366 Medieval Culture, 1100-1300 Spring term. Credit four hours. Prerequisite: History 264 or consent of the instructor. T Th 1:25-2:40. J. J. John.

The development of the universities as institutions for the preservation, dissemination, and advancement of knowledge will be studied as the background for a consideration of the scholastic mentality manifested in the writings of such thinkers as Abelard, Bonaventure, and Thomas Aquinas. Particular investigations will be directed at the connections between the scholastic mentality and the science, art, literature, and script of the period.

367 Church and State During the Middle Ages Fall term. Credit four hours. Open to undergraduates who have taken History 263 or 264, and to graduate students. T Th 3:10-4:25. B. Tierney.

The course will deal with relationships between ecclesiastical and secular authorities and with the ways in which these relationships influenced the growth of government in the Middle Ages. Particular attention will be given to the growth of medieval constitutionalism.

[368 Undergraduate Seminar on Religion and Culture in the Middle Ages] Fall term. Credit four hours. Prerequisite: History 263-264 or consent of the instructor. W 2:30. B. Tierney. Not offered in 1974-75.]

371 History of England Under the Tudors and Stuarts Spring term. Credit four hours. Prerequisite: History 257 or consent of the instructor. M W 1:25-3:20. C. A. Holmes.

An examination of the relation between the intellectual developments of the period and political, social, and religious change. Topics for discussion will include political thought, religious toleration, witchcraft, and the role of the family and of woman.

475 The English Civil War, 1640-1660 Fall term. Credit four hours. Prerequisite: History 371 or consent of the instructor. Seminar format. Hours to be arranged. C. A. Holmes.

A close analysis of the causes and development of the war, and the radical constitutional and religious experiments of the period. The major part of the work will be a research paper.

663 Seminar in Medieval History Spring term. Credit four hours. Hours to be arranged. B. Tierney.

Topic for 1975: introduction to medieval canon law.

664-665 Seminar in Latin Paleography Throughout the year. Credit four hours a term. Hours to be arranged. J. J. John.

666 Seminar in Medieval History Fall term. Credit four hours. Hours to be arranged. J. J. John.

670 Seminar in Tudor and Stuart History Spring term. Credit four hours. Hours to be arranged. C. A. Holmes.

Modern European History

[252 Introduction to Russian History] Fall term. Credit three hours. T Th 10:10-11:50. W. M. Pintner. Not offered in 1974-75.]

253-254 Survey of Russian History 253 fall term; 254 spring term. Credit three hours a term. Th 10:10-11:50.

The fall semester will deal with the origin of the autocratic state, the formation of Russian society, and the unique features that separated it from Western Europe. The spring semester will deal with the consequences of this development for modern Russia (in the nineteenth and twentieth centuries).

258 English History from the Revolution of 1688 to the Present Spring term. Credit three hours. M W F 12:20. D. A. Baugh.

A survey tracing the development of English society and government from its eighteenth-century aristocratic base, through the liberal experiment of the nineteenth century, to twentieth-century collectivism. The emphasis is on the eighteenth and nineteenth centuries.

353-354 European Intellectual History in the Nineteenth and Twentieth Centuries Throughout the year. Credit four hours a term. First term not prerequisite to the second. T Th 12:20-1:35. D. C. LaCapra.

The focus is on social and cultural thought in France, Germany, and England. The central concern is the close understanding of the thought of prominent intellectuals and writers, but attention is paid to the relations of thought, individual biography, and social history. Topics include: reactions to the French Revolution and industrialization; the definition of conservative, liberal, and radical perspectives; literature and social thought; varieties of existentialism; the birth and development of the social sciences; psychoanalysis and post-Freudian psychology; linguistic philosophy; and structuralism. Readings for the first term include Tocqueville, Mill, Hegel, Marx, Stendhal, Flaubert, Dostoevsky, Nietzsche, and Durkheim. Readings for the second term include Weber, Freud, Laing, Wittgenstein, Sartre, Camus, Mann, and Levi-Strauss.

370 Twentieth-Century European Social History Spring term. Credit four hours. T Th 10:10-12:20. J. Weiss.

The course will deal with the transformation of European social structure under the influence of industrialization, demographic change, and political conflict. Special attention will be given to the history of particular classes, occupations, and status groups, the role of technological change and educational institutions, shifts in family structure and work patterns, and the social bases of political change.

355 The Old Regime, France in the Seventeenth and Eighteenth Centuries Fall term. Credit four hours. Open to sophomores. T Th 1:25-2:45 and a discussion section to be arranged. S. L. Kaplan.

A systematic examination of the social structure, economic life, political organization, and collective mentalities of a society which eclipsed all others in its time and then, brutally and irreversibly, began to age. France, in European perspective, from the end of the Wars of Religion through the Age of Voltaire.

356 The Era of the French Revolution and Napoleon Spring term. Credit four hours. Open to sophomores. T Th 2:30-3:45 and a discussion section to be arranged. S. L. Kaplan.

A study of the failure of the traditional system, its dismantling and replacement in France, and the international consequences. Focus will be on the meaning of the revolutionary experience, the tension between the desires to destroy and to create, and the implications of the Revolution for the modern world.

[374 War, Trade and Empire, 1585-1815 Fall term. Credit four hours. M 2:30, T Th 10:10. D. A. Baugh. Not offered in 1974-75.]

[375 England since 1870 Fall term. Credit four hours. Freshmen must obtain instructor's permission.

M 1:25, W 1:25-3:20. D. A. Baugh. Not offered in 1974-75.]

378 Europe from the End of the Ancient Regime Fall term. Credit three hours. Open to sophomores. W F 10:10. E. W. Fox.

Europe in the nineteenth century. A lecture course with brief required and suggested supplementary reading. The principal focus of the course is on the major political and economic developments of the century and their impact on European society.

470 Seminar in Twentieth-Century Europe Fall term. Credit four hours. Consent of instructor required. T Th 2:30. J. Weiss.

The world crisis of 1912-1920. The course will consider the relationship between war and revolution and the interaction between domestic and international politics. Topics will include the nationalist revolutions in countries outside Western Europe, prewar social and political tensions in countries of great power, the impact of the Russian Revolution and American intervention, the forms of political mobilization and wartime government, ideological influences on the peace settlement, and changes in social structure brought by the crisis. Emphasis on comparative analysis.

471 Undergraduate Seminar in Russian Social and Economic History Fall term. Credit four hours. Th 1:25-3:20. W. M. Pintner.

The role of state policy in the development of the Russian social and economic system is stressed. Major topics are: the development of the serf system, the service aristocracy, pre- and post-Revolutionary Russia as a model for developing countries.

[472 Undergraduate Seminar in Russian Foreign Relations Fall term. Credit four hours. Th 1:25-3:20. Some prior work in Russian or European history desirable but not required. W. M. Pintner. Not offered in 1974-75.]

473 Undergraduate Seminar in the Twentieth-Century Russian History Spring term. Credit four hours. Prerequisite: any course in Russian history or a course in another department dealing with Soviet Russia, or consent of the instructor. Th 1:25-3:20. W. M. Pintner.

Several special topics will be examined in detail in an attempt to view modern Russian history as a process of continuing development rather than two distinct parts—Tsarist and Soviet. Possible topics include: the intellectual and the state, role of national minorities, the relationship of agriculture to industrialization, the maintenance of political authority.

474 Topics in Modern European Intellectual History Spring term. Credit four hours. Prerequisite: consent of the instructor. Conducted as a seminar. W 2:30-4:30. D. C. LaCapra.

477 The Politics of the Enlightenment Fall term. Credit four hours. W 2:00-4:25. S. L. Kaplan.

An inquiry into the historical origins of European (especially French) political thought beginning in the 1680s at the zenith of Louis XIV's absolutism and culminating in the French Revolution a century later. Emphasis will be placed on the relationship of criticism and theory to actual social, economic, religious, and political conditions. An effort will be made to assess the impact of enlightened thought on the eighteenth-century world and to weigh its implications for modern political discourse. Readings (all in English) from Bayle, Locke, Montesquieu, Voltaire, Rousseau, Hume, Diderot, Burke, and Paine as well as from the modern scholarly and polemical literature.

[478 Seminar on Eighteenth-Century French Social History] Fall term. Credit four hours. Permission of instructor required. Hours to be arranged. S. L. Kaplan. Not offered in 1974-75.]

[479 Undergraduate Seminar in the Government and Society in Seventeenth-Century France] Spring term. Credit four hours. Hours to be arranged. S. L. Kaplan. Not offered in 1975.]

[655 Seminar in Eighteenth-Century British History] Fall term. Credit four hours. Hours to be arranged. D. A. Baugh. Not offered in 1974-75.]

656 Seminar in Nineteenth-Century British History] Fall term. Credit four hours. Hours to be arranged. D. A. Baugh.

[671 Seminar in the French Revolution] Fall term. Credit four hours. Reading knowledge of French and permission of the instructor required. Hours to be arranged. S. L. Kaplan. Not offered in 1974-75.]

672-673 Seminar in Modern European Intellectual History] Throughout the year. Credit four hours a term. Hours to be arranged. D. C. LaCapra. Fall term 1974: Flaubert and Sartre (also Comparative Literature 689). Credit four hours. Permission of the instructors required. W 2:30-4:30. D. LaCapra and R. Roopnaraine.

A study of the aesthetic and philosophical implications of Sartre's relationship to Flaubert. Readings include: *Madame Bovary*, *L'Education sentimentale*, *Bouvard et Pécuchet*, selected letters from *Correspondance*; *La Nausée*, *Qu'est-ce que la littérature*, *Question de méthode*, *Idiot de la famille*. Reading knowledge of French desirable; texts may also be read in translation.

676-677 Seminar in Russian History] Throughout the year. Credit four hours a term. Hours to be arranged. W. M. Pintner.

[678 Seminar on the Modernization of Europe] Fall term. Credit four hours. T Th 1:30-3:30. E. W. Fox. Not offered in 1974-75.]

History of Science

281-282 Science in Western Civilization] 281 fall term only; 282 spring term only. Credit three hours a term. Prerequisite: one year of college science, His-

tory 281 or consent of the instructor is prerequisite to History 282. M W F 10:10. W. B. Provine and H. Pycior.

A survey of the development of science in its relation to the main currents of European and American civilization from classical antiquity to the present day.

288 History of Biology] Spring term. Credit four hours. Prerequisite: one year of college biology. M W F 10:10. W. B. Provine.

A history of biology focussing on the century from the work of Charles Darwin (mid-1800s) to the rise of molecular biology (mid-1900s). Topics to be emphasized are evolution, heredity, cytology, embryology, physiology, and the connections between these fields. The course explores the impact of biology upon social, philosophical, and ethical ideas; also the reciprocal influence of these ideas upon the work of biologists. Students who wish to enter this course with a background in the history of earlier biology and science are encouraged to register for History 281 in the fall.

385 Problems in the History of Biology] Fall term. Credit four hours. Prerequisite: one year of college biology or consent of the instructor. M W F 11:15. W. B. Provine.

Sex in the history of biology. An examination of ideas about sexual reproduction and its biological and social import, from the classical Greeks to current controversies.

386 Problems in the History of Biology (also Philosophy 386)] Spring term. Credit four hours. M W F 11:15. W. B. Provine and R. N. Boyd.

Philosophical problems arising in the history of biology. Emphasis will be placed upon the tension between mechanism and vitalism in the development of biology and psychology, and upon problems of the social significance of these fields.

[680-681 Seminar in the History of Science During the Nineteenth and Twentieth Centuries] Throughout the year. Credit four hours a term. Hours to be arranged. L. P. Williams. Not offered in 1974-75.]

[685 Seminar in the History of Early Modern Science] Fall term. Credit four hours. Hours to be arranged. H. E. Guerlac. Not offered in 1974-75.]

Latin American History

210 Latin American History to 1825] Fall term. Credit three hours. M W F 9:05. T. H. Holloway.

Survey of Latin America from the rise of pre-Columbian civilizations through the European conquest, establishment of the Spanish and Portuguese colonial societies, imperial rivalries in the new world, background of the independence movements, and the achievement of political independence.

211 Latin American History since 1825 Spring term. Credit three hours. M W F 9:05. T. H. Holloway.

Survey of the Latin American nations from independence to the present. Major themes include the persistence of neo-colonial economic patterns and social institutions, the development of nationalist and populist politics, revolutionary movements of the twentieth century, and U.S.-Latin American relations.

Reading, Research, and Interdisciplinary Courses

301 Supervised Reading Either term. Credit two hours. Open only to upperclassmen. Prerequisite: consent of the instructor.

302 Supervised Research Either term. Credit four hours. Open only to upperclassmen. Prerequisite: consent of the instructor.

[306 Quantitative Approaches in History Spring term. Credit four hours. Th 2:30-4:25. S. L. Kaplan and J. H. Silbey. Not offered in 1974-75.]

405 Population and History Spring term. Credit four hours. Seminar format. Open to sophomores. M 3:35-5:30 and another meeting to be arranged. S. L. Kaplan.

An examination of the impact of the methodology and findings of demography on historical scholarship and the implications of historical research for the study of population. After an introduction to demographic analysis, the seminar will focus on the relationship of population to family and social structure, economic growth, political stability, health, manners, and morals, etc. Readings in European and American history from the time of the Black Plague through the Industrial Revolution.

601 A Sociology of History Fall term. Credit four hours. A seminar open to students who have taken at least six hours of history above the 300 level. Hours to be arranged. E. W. Fox.

The course will begin with the introduction of a system of sociological analysis and its applicability to selected periods and areas of Western history. This will be followed by the presentation of papers by members of the class, testing the proposed method in their special field of interest and competence.

703-704 Supervised Reading Throughout the year. Credit four hours a term. For graduate students only. Hours to be arranged. Staff.

Honors Courses

400 Honors Proseminar Fall term. Credit four hours. Open only to juniors who have been accepted by the Department as candidates for honors in history. Th 1:25-3:20. R. L. Moore.

An introduction to historical writing and modes of research, emphasizing the possibilities and limitations of historical inquiry.

401 Honors Guidance Either term. Credit four hours. Prerequisite: History 400.

Society for the Humanities Seminars of Interest to History Students

425-426 Seminar on Bourgeois Radicalism Throughout the year. I. Kramnick.

Social Studies Teacher Preparation

507 Methods of Teaching Social Studies Fall term. Credit four hours. Hours to be arranged. Prerequisite: acceptance into the Master of Arts in Teaching or Provisional Certification Programs. W. M. Pintner.

Registration for this course must occur during preregistration week of the spring term of the previous academic year. This course cannot count as credit toward the history major, history minor, or the distribution requirement.

508 Practice Teaching in Social Studies—Provisional Certification Candidates Spring term. Credit six hours. Hours to be arranged. Prerequisite: History 507. W. M. Pintner.

This course cannot count as credit toward the history major, history minor, or the distribution requirement.

509 Practice Teaching in Social Studies—M.A.T. Candidates Spring term. Nine hours. Hours to be arranged. Prerequisite: History 507. W. M. Pintner.

History of Art

S. J. O'Connor, chairman; T. M. Brown, R. G. Calkins, K. Coleman, E. G. Dotson, J. V. Falkenheim, H. P. Kahn, T. W. Leavitt, A. Ramage, A. S. Roe, J. F. Scott, M. W. Young

Students who wish to major in the history of art should plan to have completed two courses in the Department of the History of Art by the end of their sophomore year. Students who have taken only one course may petition the chairman to major in the Department if that course is at the 200 level or above and is completed with a grade of C or better. Students should also have completed the distribution requirements, but exceptions will be considered upon petition to the department chairman at the time of application to the major.

In their junior and senior years, students who are majoring in history of art will work closely with their major advisers to determine acceptable programs of courses in the major field. Normally the program will

include at least thirty additional hours of courses, of which twenty-four should be at the 300 or 400 level (chosen from those listed below) and a minimum of two additional courses in the Department or a related area approved by the major adviser. Courses at the 200 or 300 level taken in the Department during the freshman or sophomore years may be counted toward the major, providing such courses are in addition to the two courses offered in satisfaction of the prerequisite to the major. Students who are majoring are encouraged to take studio courses in painting and sculpture offered by the Department of Art in the College of Architecture, Art, and Planning; but such courses will be considered electives and may not count toward the basic thirty hours normally required in the major.

The Honors Program

In order to become a candidate for the degree of Bachelor of Arts with honors in the history of art, a student must have a cumulative average of B for all courses in the Department of the History of Art. Admission into the Program requires the consent of the department chairman during the second term of the student's junior year. In the senior year the honors candidate will include among the regular requirements Art History 493-494, involving the preparation of a senior thesis under faculty supervision.

Distribution Requirement

The distribution requirement in expressive arts is satisfied by a combination of any two History of Art courses at the 200 level or above, or Archaeology 100 and one of the History of Art courses listed under the Archaeology Concentration on p. 39.

Freshman Seminars

103 Freshman Seminar in Visual Analysis Either term. Credit three hours. Offered in the Freshman Seminars Program and as a freshman elective but not in satisfaction of the distribution requirement. Times to be announced. Staff.

Concentrating on man-made objects, ranging from letterheads to cities and including conventional categories of painting, sculpture, and architecture. Intended as an introduction to the problems of perceiving the work of art and articulating the visual experience. Students meet in groups of twenty to discuss these topics—through reproductions, concrete objects, and accessible environments—in order to involve the participant in the analysis of the visual experience. Readings and a number of short papers will be assigned throughout the term, but emphasis is placed on classroom participation. Conceived as a supplement, not a prerequisite, to art history, the course does not approach art in a conventional historical manner, but rather in terms of the information intrinsic to the object itself. Of general interest in fields other than art history, such as anthropology, psychology, and the like.

104 How to Look at Works of Art Either term. Credit three hours. Offered in the Freshman Seminars Program and as a freshman elective but not in satisfaction of the distribution requirement. Fall term: T Th 2:30-3:45. H. P. Kahn. Spring term: T Th 12:20-1:35. J. V. Falkenheim.

A detailed examination of several major works of art, primarily paintings, including the historical, biographic, and artistic nature of the works studied.

[105 Roman Cities, People, and Monuments] Spring term. Credit three hours. Offered in the Freshman Seminars Program and as a freshman elective but not in satisfaction of the distribution requirement. M W F 10:10. A. Ramage. Not offered in 1974-75.]

Introductory Courses

The following courses are designed to introduce students to the processes and methods of art history by means of a systematic examination of a closely related body of visual material. The courses need not be taken in any particular sequence. One 200-level course is normally the prerequisite to courses at the 300 level.

210 Introduction to Art History: Beginnings of Civilization Fall term. Credit three hours. T Th 9:05 and an additional discussion section to be arranged. K. Coleman.

The role art played in the dawn of urban man as seen in the ancient Near East, especially the kingdom of Egypt and the city-states of Mesopotamia. Themes will be developed on the forms art takes at different stages of political organization, and relevant material from the early civilizations of Iran and Anatolia will be introduced for comparison.

215 Introduction to Art History: Art of the Classical World Spring term. Credit three hours. M W F 11:15. A. Ramage.

The sculpture, vase painting, and architecture of the ancient Greeks, from the geometric period through the Hellenistic; and the art of the Romans, from the early Republic to the late Empire.

Introduction to Classical Archaeology (Classics 220)

230 Introduction to Art History: Medieval Art Fall term. Credit three hours. M W F 9:05. R. G. Calkins.

Not a survey, but an introduction to the approaches to art history through a study of selected works of art from the Middle Ages. Representative works of architecture, sculpture, painting, manuscript illumination, metal work, and ivory of various periods will be examined in depth in terms of their formal stylistic characteristics, their iconographical content, and their historical, social, economic, and religious context.

240 Introduction to Art History: The Renaissance Spring term. Credit three hours. M W F 10:10 and an additional discussion section at one of the following times: M 1:25, 2:30, 3:35 or T 10:10. E. G. Dotson.

A study of selected works of architecture, sculpture, and painting of the fifteenth and sixteenth centuries in Italy and northern Europe and of selected major artists, notably Donatello, Jan van Eyck, Michelangelo, and Bruegel. Emphasis will be on the critical evaluation of various approaches to understanding the work of art and the Renaissance period. The function of artistic tradition and the meaning of artistic style; individuality in artistic invention; the impact of various forms of patronage; and relations of social, intellectual, and artistic currents of the Renaissance will be among the subjects discussed.

[250 Introduction to Art History: The Baroque Era

Spring term. Credit three hours. M W F 9:05. A. S. Roe. Not offered in 1974-75.]

260 Introduction to Art History: Nineteenth-Century Art Fall term. Credit three hours. M W F 11:15. J. V. Falkenheim.

The development of nineteenth-century European painting from its origins in the classical tradition of Western art to the emergence of modern art. The emphasis will be on French painting from David to impressionism, with special attention given to the historical context in which the works of art were created and to the conventions and visual vocabulary used by the artists.

270 Introduction to Art History: American Art of the Colonial Period and of the Nineteenth Century Fall term. Credit three hours. M W F 12:20. A. S. Roe.

Art in the British Colonies and in the United States from its beginnings to the early years of the present century.

280 Introduction to Art History: Asian Traditions Fall term. Credit three hours. M W F 10:10. S. J. O'Connor.

Designed to introduce students to the varied responses of the Asian artist in differing times and geographical contexts, the course will include material on the Buddhist tradition, the Hindu temple, miniature paintings, Chinese Bronze Age art, and the development of Chinese landscape painting.

290 Introduction to Art History: Architecture and Environment Spring term. Credit three hours. M W F 12:20. T. M. Brown.

An investigation of one of the oldest, most pervasive, and most influential facets of human environment, with emphasis on the social aspects of architecture in the nineteenth and twentieth centuries. After a lengthy introduction to architectural elements—space, form, function, structure—the course will concentrate on the thoughts, attitudes, and forms that have influenced the physical shape of the modern world. Extensive reading will be offered in a variety

of social, environmental, and esthetic works such as Le Corbusier, *Towards a New Architecture* (1923); Huxley, *Brave New World* (1932); Hall, *The Hidden Dimension*.

Intermediate Courses

The following courses are intended primarily for upperclassmen and qualified sophomores, and, except as noted, all require as a general prerequisite one course at the 200 level. Some of the courses have discussion sections.

[313 Prehistoric Art Fall term. Credit four hours. M W F 9:05. Not offered in 1974-75.]

[314 Primitive Art Spring term. Credit four hours. T Th 9:05-10:20. J. F. Scott. Not offered in 1974-75.]

[315 Pre-Columbian Art Spring term. Credit four hours. M W F 10:10. J. F. Scott. Not offered in 1974-75.]

[316 Art of the Ancient Near East Spring term. Credit four hours. M W F 12:20. J. F. Scott. Not offered in 1974-75.]

322 Arts of the Roman Empire Fall term. Credit four hours. M W F 9:05. A. Ramage.

The visual arts in the service of the first world state. The course starts with the Etruscan and Republican periods and ends with the conflict of styles in the early Christian period.

[323 Painting in the Greek and Roman World Spring term. Credit four hours. M W F 12:20. A. Ramage. Not offered in 1974-75.]

[324 Architecture in the Greek and Roman World Fall term. Credit four hours. M W F 10:10. A. Ramage. Not offered in 1974-75.]

[332 Architecture of the Middle Ages Fall term. Credit four hours. M W F 11:15. R. G. Calkins. Not offered in 1974-75.]

[333 Early Medieval Art and Architecture Fall term. Credit four hours. M W F 11:15. R. G. Calkins. Not offered in 1974-75.]

334 Romanesque Art and Architecture Fall term. Credit four hours. M W F 11:15. R. G. Calkins.

The painting, manuscript illumination, sculpture and architecture of the eleventh and twelfth centuries, primarily in France, England, and Spain. Particular attention will be paid to the art of the Pilgrimage Roads, the manifestation of specific regional styles, the problems of Byzantine influence, the significance of the art of the church treasures, and the factors which brought about the transition to the early Gothic.

335 Gothic Art and Architecture Spring term. Credit four hours. M W F 9:05. R. G. Calkins.

The painting, sculpture, and architecture of the thirteenth and fourteenth centuries, primarily in France

and England, but with reference to important manifestations of the spread of the Gothic style across western Europe. Some of the topics which will be considered: the significance of the Gothic cathedral in terms of its structure, decoration, iconography, and function in medieval society; the changing role of the artist and patron in the later Middle Ages; the proliferation of objects and illuminated manuscripts for private devotion; the appearance of the "international Gothic style;" and the concept of the "waning Middle Ages" in relation to the transition to the early Renaissance style.

[336 Medieval Italian Art] Spring term. Credit four hours. M W F 11:15. R. G. Calkins. Not offered in 1974-75.]

[341 Flemish Painting] Fall term. Credit four hours. M W F 9:05. R. G. Calkins. Not offered in 1974-75.]

[342 Medieval and Renaissance German Art] Spring term. Credit four hours. M W F 9:05. R. G. Calkins. Not offered in 1974-75.]

343 Italian Renaissance Sculpture Spring term. Credit four hours. M W F 10:10. A. S. Roe.

A study of sculpture in central and northern Italy from the late Gothic period to the High Renaissance. Emphasis will be on Florentine sculpture from Ghiberti and Donatello to Michelangelo.

344 Italian Renaissance Art of the Sixteenth Century Fall term. Credit four hours. T Th 10:10-11:25. E. G. Dotson.

In 1974-75 the course will be organized around two main subjects: the aesthetic ideals and symbolic structures of Mannerism, and the Italian sources of the late sixteenth century artistic revolution associated with Caravaggio. Such artists as Raphael and Michelangelo, Tintoretto, Veronese, and El Greco will be examined in relation to Mannerism, along with the special development of sixteenth-century court art. Giogione and his successors in Venice and Lombardy will be studied with special emphasis on the anticipation of Caravaggio's artistic aims and interests. The international spread of Mannerism, and north European influences on and reactions to Caravaggio will also be discussed.

[349 Italian Renaissance Architecture] Spring term. Credit four hours. T Th S 9:05. R. G. Calkins. Not offered in 1974-75.]

[354 Dutch Painting of the Seventeenth Century] Spring term. Credit four hours. M W F 11:15. Not offered in 1974-75.]

[355 French Art of the Sixteenth and Seventeenth Centuries] Fall term. Credit four hours. T Th S 11:15. E. G. Dotson. Not offered in 1974-75.]

[357 European Art of the Eighteenth Century] Fall term. Credit four hours. M W F 9:05. E. G. Dotson. Not offered in 1974-75.]

363 Modern Painting Spring term. Credit four hours. Prerequisite: History of Art 260. T Th 10:10-11:25. J. V. Falkenheim.

A study of major developments in European and American painting during the twentieth century. The emphasis will be on movements, such as cubism, surrealism, and abstract expressionism, which questioned and attempted to redefine the means and meaning of visual communication.

[367 Modern Architecture] Fall term. Credit four hours. It is assumed that students will have some background in nineteenth- and twentieth-century history, literature, and art. M W F 11:15. T. M. Brown. Not offered in 1974-75.]

374 American and European Interior Design and Decorative Arts of the Renaissance and Early Nineteenth Century (formerly History of Art 474) Spring term. Credit four hours. M W F 12:20. A. S. Roe.

The evolution of the successive major styles in European interior design and furnishing will be studied in relation to their impact upon the arts and crafts of the Colonies and of the United States from the earliest period until the advent of mechanized production.

378 American Architecture, the City, and American Thought: 1850-1950 Fall term. Credit four hours. A background in nineteenth- and twentieth-century American history and literature is presupposed; History of Art 290 is a prerequisite. Course limited to forty students. Lectures M W 12:20 and two discussion sections Th F 12:20. T. M. Brown.

American architecture and urbanism approached as cultural history, focussing on such topics as "technology: pro and con," "architecture as metaphor," "cities: source of virtue or vice?" Extensive reading will be required from works of Jefferson, Thoreau, Greenough, Sullivan, Henry Adams, Whitman, Wright, and from such secondary sources as Leo Marx's *The Machine in the Garden* and M. and L. White's *The Intellectual Versus the City*. One book per week will be required.

383 Art of China Fall term. Credit four hours. T Th 11:15-12:30. M. W. Young.

A consideration of the major achievements of the Chinese artists, including the early bronze casters, Buddhist sculptors, ceramic potters, and landscape painters. The course will begin with an examination of the archaeological background for our knowledge of the beginnings of Chinese civilization and will then analyze the impact of Taoism, Confucianism, and finally Buddhism in shaping the aesthetic expression of China up to the golden age of the T'ang dynasty. The second half of the course will focus on the arts of painting and ceramics, beginning with a discussion of landscape painting in the tenth century and ending with an examination of the porcelains that brought China into contact with the West in the seventeenth and eighteenth centuries. Intended as a general introduction to Chinese art, culture, and history, no previous experience with China or with art

history is required. Basically a lecture course, there will be some opportunity to meet in small discussion sections and to work with the Johnson Museum collection of Chinese art. There is a term paper option in place of the final examination.

384 Art of Japan Spring term. Credit four hours. T Th 11:15-12:30. M. W. Young.

An examination of painting, sculpture, and architecture from the Buddhist period through the development of national style to the modern age in Japan. Buddhist art and architecture will be considered in the first part of the course, but the lectures will concentrate on medieval Japan (with special emphasis on Zen painting and the art of the tea ceremony), garden design, the great decorative tradition in screen painting, lacquer and the minor arts, folk arts, and finally later paintings and prints of the "floating world." Designed as an introduction to Japanese art, no previous experience with Japan or with art history is required. There will be occasional discussion meetings and an opportunity to work with the Johnson Museum collection of Japanese art. There is an option for a term paper in place of the final examination.

385 Chinese Painting Spring term. Credit four hours. W 1:25-3:20 and an additional hour to be arranged. M. W. Young.

The first several lectures will be concerned with the general historical framework necessary for developing an approach to Chinese painting. The focus of the course will be on painting from the thirteenth century to the beginning of the twentieth century, and the lectures will be broadly thematic rather than detailed and chronological. Among the topics covered will be an examination of regional schools of landscape painting, the theories of Zen and literati painting, the development of individualism and eclecticism in the seventeenth century, and the general problems of tradition and change in the modern period. Students who have taken 383 will find this course a natural continuation, but 383 is not a prerequisite. Students with no previous knowledge of China or art history may take this course. Conducted as a general lecture course with discussion meetings. There will be opportunity to work with the Johnson Museum collection. There is a term paper option in place of the final examination.

[386 Studies in Indian and Southeast Asian Art] Spring term. Credit four hours. M W F 9:05. S. J. O'Connor. Not offered in 1974-75.]

[392 Latin American Art] Spring term. Credit four hours. T Th S 12:20. J. F. Scott. Not offered in 1974-75.]

Seminars

Courses at the 400 level are open to upperclassmen and majors; seminars at the 500 level are for qualified upperclassmen and graduate students. All seminars involve the writing and presentation of research papers. Enrollment is limited in this group of courses,

and consent of the department or instructor is normally required. The 500-level courses with announced topics may be repeated.

401 Independent Study Either term. Credit two hours. Prerequisite: consent of a Department member.

Individual investigation and discussion of special topics not covered in the regular course offerings, by arrangement with various members of the Department. May be repeated.

402 Independent Study Either term. Credit four hours. Prerequisite: consent of a Department member.

Individual investigation and discussion of special topics not covered in the regular course offerings, by arrangement with various members of the Department. May be repeated.

405 Original Works of Art Fall term. Credit four hours. Prerequisites: at least four courses in the history of art and consent of the instructor. M 1:25-3:20. T. W. Leavitt.

Designed to acquaint the advanced student with original works of art, the course meetings will be in the Herbert F. Johnson Museum, and will consider a wide group of materials from the point of view of connoisseurship and quality. Lectures, discussions, reports.

406 Museum Collections and the Public Fall term. Credit two hours. Prerequisite: consent of the instructor. M 3:35-5:00. T. W. Leavitt and staff. Only grades of S and U will be given.

Intended for history of art majors and museum guides, this course will concern itself with the use of museum collections with respect to the general public. Students will be involved with the various processes which lead to teaching directly with the art object. The course will include some aspects of practical museum operation, but the focus will be on problems of organizing exhibitions and conducting tours. Weekly discussions, paper presentations, and public talks.

411 Techniques and Materials: Painting Fall term. Credit four hours. Prerequisites: at least four courses in the history of art and consent of the instructor. History of art majors given first preference. Limited to twenty students. F 1:25-3:20 and one work session to be arranged. H. P. Kahn.

For majors and other advanced students, this course will deal with technical aspects of painting in the historical context. Included will be studies of traditional media employed by the old masters, conservation techniques, and laboratory exercises. Conducted as a seminar, with lectures, discussions, museum study, projects, and reports.

412 Techniques and Materials: Graphics Spring term. Credit four hours. Prerequisites: at least four courses in the history of art and consent of the instructor. History of art majors given first preference.

Limited to twenty students. W 1:25-3:20 and one work session to be arranged. H. P. Kahn.

For majors and other advanced students, the course will deal with the various techniques involved in the graphic media throughout its history, with special emphasis on the relationships of form, expression, and technique. Conducted as a seminar, with lectures, discussions, technical and museum studies, and reports.

413 Books, Prints, and the Graphic Image

Spring term. Credit four hours. Prerequisites: at least four courses in the history of art and consent of the instructor. History of art majors given first preference. Limited to twenty students. F 1:25-3:20 and one work session to be arranged. H. P. Kahn.

Students may concentrate in one of the following topics: (1) a historical study of the evolution of book forms from the early Roman period to the modern book. Letter forms, calligraphy, typography, pages, and continuous texts are studied and actually practiced. Formal penmanship, calligraphy, the use of type, and type pages are given primary attention; or (2) the historical and practical study of various graphic media including relief prints, intaglio, silk-screen, and photographic modes of reproduction will be considered.

[414 Form, Content, Technique in the Mass Media] Fall term. Credit four hours. Prerequisites: prior experience with one of the media involved and consent of the instructor. Th 1:25-3:20. H. P. Kahn. Not offered in 1974-75.]

Seminar on the Semiotics of the Visual Arts (Society for the Humanities 413-414)

[415 Seminar in Pre-Columbia Art and Archaeology] Fall term. Credit four hours. W 1:25-3:20. J. F. Scott. Not offered in 1974-75.]

[421 The History of Art Criticism] Fall term. Credit four hours. Prerequisites: History of Art 260, 363, and some background in modern French or English literature or one other course in the history of art and consent of the instructor. Enrollment limited to fifteen students. Th 1:25-3:20. J. V. Falkenheim. Not offered in 1974-75.]

431 Greek Sculpture Spring term. Credit four hours. Prerequisite: History of Art 215 or consent of the instructor. M W F 2:30. A. Ramage.

Study of ancient Greek sculptural techniques and achievements in marble and bronze. Detailed examination of a selection of works to illustrate sculptural development.

[The Roots of Modernism (Theatre Arts 435)] Not offered in 1974-75.]

[448 Mannerism and the Early Baroque in Italy] Spring term. Credit four hours. Prerequisite: consent of the instructor. T 1:25-3:20. E. G. Dotson. Not offered in 1974-75.]

[449 Studies in Italian Renaissance Art] Fall term. Credit four hours. Prerequisite: consent of the instructor. Enrollment limited to fifteen students. W 1:25-3:20. A. S. Roe. Not offered in 1974-75.]

452 Studies in English Art Fall term. Credit four hours. Prerequisite: consent of the instructor. Enrollment limited to fifteen students. Th 1:25-3:20. A. S. Roe.

Topic for 1974: the art and literary work of William Blake. Open to upperclassmen majoring in the arts or in literature, and also to graduate students.

458 Classic and Romantic Art Spring term. Credit four hours. Prerequisite: consent of the instructor. Th 3:35-5:30. E. G. Dotson.

Topic for 1974-75: Goya.

[462 Art and Technology: 1850-1950] Spring term. Credit four hours. Prerequisite: History of Art 260, 290, 363, 367 or equivalents, or consent of the instructor. Enrollment limited to twenty-five students. T 11:15-1:10; Th 11:15. T. M. Brown. Not offered in 1974-75.]

[472 Romanticism in Painting] Spring term. Credit four hours. Prerequisite: consent of the instructor. M 1:25-3:20. T. W. Leavitt. Not offered in 1974-75.]

481 Masters of Japanese Prints Fall term. Credit four hours. Prerequisites: History of Art 384 and consent of the instructor. Hours to be arranged. M. W. Young.

The course will concentrate principally on connoisseurship and related problems connected with the Western response to Japanese prints of the eighteenth and nineteenth centuries. There will be occasional lecture meetings, but the course will be organized essentially as a reading course and will permit advanced students to prepare a term paper under close supervision. The Japanese print collection of the Johnson Museum will serve as the general focus for the course.

482 Ceramic Art of Asia Spring term. Credit four hours. Prerequisite: History of Art 280, 383, 384 or consent of the instructor. F 1:25-3:20. S. J. O'Connor.

The Johnson Museum's collection of Asian ceramics will provide a principal resource for study. Lectures, reports, and discussions.

[483 Studies in Buddhist Art] Spring term. Credit four hours. Prerequisite: consent of the instructor. T 1:25-3:20. S. J. O'Connor. Not offered in 1974-75.]

[488 Traditional Arts in Southeast Asia] Spring term. Credit four hours. Prerequisite: consent of the instructor. W 1:25-3:20. S. J. O'Connor. Not offered in 1974-75.]

493 Honors Work Either term. Credit four hours. Intended for senior art history majors who have been admitted to the Honors Program. Hours to be arranged. Staff. Only grades of S and U will be given.

Basic methods of art historical research will be discussed and individual readings assigned leading to the selection of an appropriate thesis topic.

494 Honors Work Either term. Credit four hours. Prerequisite: History of Art 493. Hours to be arranged. Staff.

The individual student, under faculty direction, will prepare a senior thesis.

[510 Seminar in Latin American Art Fall term. Credit four hours. W 1:25-3:20. J. F. Scott. Not offered in 1974-75.]

531 Problems in Medieval Art and Architecture Spring term. Credit four hours. Prerequisite: consent of the instructor. Enrollment limited to fifteen students. T 1:25-3:20. R. G. Calkins.

Topic for 1974-75 to be announced.

564 Studies in Modern Art Fall term. Credit four hours. Prerequisite: consent of the instructor. Enrollment limited to fifteen students. W 1:25-3:20. J. V. Falkenheim.

Topic for 1974: the New York School. A study of the origins and development of abstract expressionism, with an emphasis on the cultural and social context in which such artists as Hofmann, Pollock, de Kooning emerged as principal figures in the development of contemporary American painting. Lectures, reports, papers.

565 Problems in Modern Art and Architecture Spring term. Credit four hours. Prerequisite: consent of the instructor. Enrollment limited to fifteen students. Th 1:25-3:20. T. M. Brown.

A seminar conceived as a follow-up to History of Art 378, an investigation of the importation of European modernism into the United States during the late twenties and early thirties, concentrating on such topics as the founding of the Museum of Modern Art, on the design of Rockefeller Center, and on the thought and works of such forgotten heroes as Norman Bel Geddes.

[580 Problems in Asian Art Fall term. Credit four hours. T 1:25-3:20. Not offered in 1974-75.]

[584 Problems in Chinese Art Spring term. Credit four hours. Prerequisite: consent of the instructor. W 1:25-3:20. M. W. Young. Not offered in 1974-75.]

[586 Studies in Chinese Painting Spring term. Credit four hours. Prerequisites: History of Art 383, 385, and consent of the instructor. W 1:25-3:20. M. W. Young. Not offered in 1974-75.]

591-592 Supervised Reading 591 fall term only; 592 spring term only. Credit four hours, but may be taken more than once in the same term. For graduate students only.

[595 Methodology Seminar Fall term. Credit four hours. Prerequisite: consent of the instructor. T 1:25-3:20. R. G. Calkins. Not offered in 1974-75.]

596 Problems of Art Criticism Spring term. Credit four hours. Prerequisite: consent of the instructor. M 1:25-3:20. S. J. O'Connor.

The seminar will consider the relationship between the critic and the historian of art. Readings and discussion will focus both on the work of critics writing in the prevailing mode of discourse which is formalist, and on the implications of other recent work which may provide alternative models of criticism. Open to graduate students and especially qualified undergraduates.

Archaeology

Students who are interested in archaeology are directed especially to History of Art 315, 415, and 488, all of which include archaeological material. The following specialized courses treat specific excavational material and procedures and are open to students who have some background in ancient history, ancient languages, anthropology, or art history.

423 Ceramics (formerly History of Art 523) Fall term. Credit four hours. Prerequisite: consent of the instructor. T 1:25-3:20. A. Ramage.

Pottery specimens from several Near Eastern and Mediterranean sites will be studied to provide direct experience in one of the basic prerequisites of archaeological excavation—the identification and dating of pottery types. Two papers, delivered as reports in class, will concern ancient ceramic materials of particular types and periods and other related matters.

[424 Numismatics Fall term. Credit four hours. Prerequisite: consent of the instructor. M 1:25-3:20. A. Ramage. Not offered in 1974-75.]

Italian

For complete course listings and for details of the major, see the heading "Italian" in the section Modern Foreign Languages and Literatures.

Mathematics

O. S. Rothaus, chairman; M. M. Cohen, associate chairman; I. Bernstein, J. H. Bramble, K. S. Brown, L. D. Brown, S. U. Chase, R. Connelly, G. E. Cooke, R. K. Dennis, C. J. Earle, A. Edmonds, R. H. Farrell, W. H. J. Fuchs, S. S. Gelbart, L. Gross, R. S. Hamilton, D. W. Henderson, K. Ito, A. V. Jategaonkar, P. J. Kahn, H. Kesten, J. C. Kiefer, A. W. Knapp, S. Lichtenbaum, G. R. Livesay, M. D. Morley, A. Nerode, L. E. Payne, R. A. Platek, A. Z. Rosenberg, A. H. Schatz, S. Sen, R. Shore, D. A. Singer, F. L. Spitzer, R. S. Strichartz, M. E. Sweedler, A. Torchinsky, L. B. Wahlbin, H. C. Wang, W. C. Waterhouse, J. E. West

Members of the Department are available to discuss with students the appropriate courses for their levels of ability and interest, and students are urged to avail themselves of this help.

Much time may be saved by a careful reading of this *Announcement*.

Students wishing to take any of the courses numbered 300 or above are invited to confer, before registering, with the instructor concerned.

Subject matter of courses indicated by the second digit thus: 0, general; 1, 2, analysis; 3, 4, algebra; 5, 6, topology and geometry; 7, probability and statistics; 8, logic; 9, other. The level of a course is indicated by the first digit of the course number: roughly 1, 2, indicate underclass courses; 3, 4, upperclass courses; 5, 6, graduate courses.

In all 600-level courses, as well as in course 515, the final grades will be only S or U with the exception of 690.

Advanced Placement

Secondary school students are strongly urged to take one of the two Advanced Placement Examinations of the College Entrance Examination Board in their senior year. In addition, there will be a placement examination in mathematics offered at Cornell just before the beginning of classes in the fall which some students should take. It is most important that anyone with any knowledge of calculus read carefully the relevant portion of the section on Advanced Placement at the beginning of this *Announcement*.

Major Options

There are three options available for students intending to major in mathematics; the respective requirements are listed below. In each case, students will be accepted as majors by the Department only if they can reasonably be expected to have satisfied the prerequisite to their options by the end of the term in which they apply for admission to the major. Ac-

ceptance is contingent upon actual fulfillment of the prerequisites.

Option 1.

This option covers all students who contemplate an eventual Ph.D. in pure or applied mathematics. Prerequisite: course 221-222. Requirements: (a) 411-412, (b) 431-432, (c) at least twelve additional hours of mathematics courses numbered 300 or above, other than 303, 315, 370; Computer Science 621, 622 may be included in these twelve hours.

The Department strongly recommends that all prospective Option 1 majors take Physics 112 and 213 or 207-208 in their freshman year. Those interested in the application of mathematics should certainly do so and should also seriously consider the offerings in differential equations, probability and statistics, and numerical analysis.

Option II.

This option includes those mainly interested in the application of mathematics who do not contemplate an eventual Ph.D. in mathematics or applied mathematics. It will not prepare a student for work at the Ph.D. level in the theoretical side of even such applied areas as statistics, numerical analysis, etc. Prerequisites: (a) 221-222; (b) Physics 207-208 or 112 and 213. Requirements: (a) 421, 422; (b) 431, and either 332 or 432; (c) Computer Science 211 (with Computer Science 102 for two hours credit as prerequisite) (d) an approved eight-hour sequence in statistics, numerical analysis (in the Department of Computer Science), or differential equations; (e) at least eight additional hours of courses numbered 300 or above in mathematics, computer science, or a physical science not including Mathematics 303, 315, 370, nor Computer Science 102.

An alternate version with emphasis on computer science. Prerequisites: (a) 221-222; (b) Computer Science 101 or 102. Requirements: (a) 421-422 or 411 plus one additional course approved by the Mathematics Department; (b) 431 and either 332 or 432; (c) Computer Science 314, 410, and one of the following: 321-322 and 481, 481-482 and 321, 611-612 and 321 or 481.

Alternate version with emphasis on operations research. Prerequisites: (a) 221-222; (b) Computer Science 101. Requirements: (a) 421-422 or 411 plus one additional course approved by the Mathematics Department; (b) 431 and either 332 or 432; (c) two of IOA 335; IOE 734; IOE 637; (d) IOC 320 and 371; (e) IOC 321 or IOC 361. (Operations research courses are offered by the College of Engineering.)

Option III.

This option is for prospective secondary school teachers and others who wish to major in mathematics but do not intend to become professional mathematicians, e.g., premedical and prelaw students. It does not prepare a student for graduate work in mathematics. Candidates for student teaching must

sign up with Prof. A. Z. Rosenberg at the latest by the second term of their junior year. (Because of the changing certification procedures in New York State, it is not at all clear that the Teacher Certification Program in Mathematics will continue beyond 1977.) Prerequisites: (a) 222 or (a') 214-216-218 (formerly 213) and either 331 or 332; (b) Physics 101-102, or 207-208. Mathematics requirements: (a) 311 and 315; (b) 331, if 221 has not been taken, 332; (c) 451; (d) Computer Science 201, and either (e) 452 and four additional hours of mathematics courses numbered above 300 plus Mathematics 130 and 140 and one course in education (Mathematics 370 is recommended but not required) or (e') 312 or 452, and eight additional hours of mathematics courses numbered above 300.

The Honors Program

Honors in mathematics will be awarded on the basis of a high level of performance in departmental courses. Further requirements, if any, will be announced during the year.

Distribution Requirement

The distribution requirement in mathematics is satisfied with any six hours in mathematics, not including more than one course from among 105, 107, 303. It is also satisfied by a score of 3 on the CEEB BC examination. Computer Science 101 may be used for three of these hours. Distribution credit is not given for Orientation 110, College of Agriculture and Life Sciences.

Graduate Courses

For complete descriptions of courses numbered 500 and above, see the *Announcement of the Graduate School; Course Descriptions*. If a course is not included there, consult the graduate field representative.

General Courses

Students wanting a general introductory mathematics course are advised to take 107-108 (see description below).

130 Practice Teaching in Mathematics Either term. Credit six hours. Hours to be arranged. S-U grades only. Students will not be permitted to take more than two additional courses while they are teaching.

131 Practice Teaching in Mathematics for MAT Candidates Credit nine hours. Hours to be arranged.

140 Methods of Teaching Mathematics Fall term. Credit three hours. Open only to students enrolled concurrently in Mathematics 130 or 131, or

students who will take 130 or 131 in the spring. Hours to be arranged. L. J. Holman.

A discussion of methods of teaching mathematics at the high school level.

303 History of Mathematics Spring term. Credit four hours. Prerequisite: one term of calculus. M W F 11:15. R. Platek.

A review of the history of mathematics from antiquity to the present.

401 Honors Seminar Spring term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. I. Berstein.

Students will discuss selected topics under the guidance of one or more members of the staff.

690 Supervised Reading and Research Variable credit up to six hours each term.

Basic Sequences

College algebra and trigonometry are taught in Orientation 5 and 110, offered by the College of Agriculture and Life Sciences.

There are two sequences in elementary calculus and several special purpose sequences. The two elementary calculus sequences have 111 in common. The upper sequence continues with 122, 221, and 222, while the standard sequence continues with 112 and the package of one-credit courses 214-215-216-218. 214-216-218 replaces 213. Students who desire to take advanced courses in theoretical mathematics should take the upper sequence, which is prerequisite to most of them. A student whose performance in 112 has been exceptional may be admitted into 221. A student in the standard sequence who wants the linear algebra material of 221 may obtain it in 331.

The special purpose sequences are 105-106, 107-108, and 191-192-293-294. The latter is primarily for engineers and prospective physics majors. Note that there are honors versions of 191, 192, 293, and 294 namely, 193, 194, 295, and 296, respectively. (Physics majors who desire an appropriate version of the upper sequence described above should take 191-122-221-222). Mathematics 107-108 is intended primarily for students in the more descriptive areas of the social sciences, and will normally be terminal. Students who take Orientation 110 are advised to take 107-108 rather than 111. Mathematics 107 treats finite mathematics, and 108 gives an introduction to calculus; 108 may be taken without 107, and is preferable to 111 for students desiring only one semester of calculus. Mathematics 105-106 is similar to 107-108 but it presents mathematics from the point of view of the biologist. Students interested in starting with two semesters of calculus should take Mathematics 111-112 or 111-122. Students who want two semesters of calculus can also follow 106 with 112 or 122; or 108 with 112 if they have done exceptionally well in 108. In exceptional circum-

stances they may follow 106 with 214 or 218, providing they make up some missing material on their own. Students wishing to switch between sequences may take 105 and 111, or 107 and 111. Warning: 105-111 will not satisfy the requirements for a biology major.

Students cannot receive credit for both 105 and 107. Nor can they receive credit for more than one of 103, 106, 108, 109, 111, 191, 193. Nor can they receive credit for more than one of 110, 112, 122, 192, 194.

103 Mathematics for Architects Fall term. Credit three hours. Lectures: T Th 10:10 and one hour to be arranged. This course is identical to Architecture 221.

Rudiments of calculus and an introduction to vectors and matrices.

105 Finite Mathematics for Biologists Fall term. Credit three hours. Prerequisite: three years of high school mathematics including trigonometry. Lectures T Th 11:15 and two hours to be arranged. Preliminary examinations will be held the evenings of October 3, October 31, and November 21.

Models, analytic geometry, difference equations, elementary linear algebra, probability. Examples from biology will be used throughout the course.

106 Calculus for Biologists Spring term. Credit three hours. Prerequisite: Mathematics 105 or three years of high school mathematics, including trigonometry and analytic geometry. Lectures T Th 11:15 and two hours to be arranged. Preliminary examinations will be the evenings of February 27, April 3, May 1.

Introduction to differential and integral calculus, partial derivatives, elementary differential equations. Examples from biology will be used throughout the course.

107 Finite Mathematics for the Biological and Social Sciences Either term. Credit three hours. Prerequisite: three years of high school mathematics, including trigonometry. Fall term: lectures, T Th 11:15 and two hours to be arranged. Spring term: T Th 11:15 and two hours to be arranged. Preliminary examinations will be held at 7:30 p.m. on October 3, October 31, November 21, February 27, April 3, May 1. A. Z. Rosenberg.

Functions, enumeration, permutations and combinations, probability, vectors and matrices, Markov chains.

108 Calculus with Applications to the Biological and Social Sciences Either term. Credit three hours. Prerequisite: three years of high school mathematics including trigonometry and analytic geometry of the line and circle. Mathematics 107 is desirable, but not mandatory. Fall term: T Th 11:15 and two hours to be arranged. A. Jategaonkar. Spring term: T Th 11:15 and two hours to be arranged. M. Morley. Preliminary examinations will be held at 7:30 p.m. on

October 3, October 31, November 21, February 27, April 3, May 1.

Behavior of functions, introduction to differential and integral calculus, elementary differential equations.

109 Calculus Either term. Credit three hours. Students may enter this course only by special permission of the Department of Mathematics. The course covers the same material as Mathematics III but in one year instead of one term; students attend the same lectures as students taking Mathematics 111.

110 Calculus Either term. Credit three hours. Students may enter this course only by special permission of the Department of Mathematics. The course covers the same material as Mathematics 112 but in one year instead of one term; students attend the same lectures as students taking Mathematics 112. Discontinued in spring 1975. Only students registered for this course in spring 1974 may register for it in fall 1974.

111 Calculus Either term. Credit three hours. Prerequisite: three years of high school mathematics including trigonometry. Fall term: lectures, T Th 11:15, 12:20, and recitation to be arranged. K. Dennis and A. Torchinsky. Spring term: lectures, T Th 11:15 and recitations to be arranged. Preliminary examinations will be given some Tuesday or Thursday evenings. S. Chase.

Plane analytic geometry, differentiation and integration of algebraic and trigonometric functions, applications of differentiation, logarithmic, and exponential functions.

112 Calculus Either term. Credit three hours. Prerequisites: Mathematics 106, 111 with a grade of B or better, or consent of the instructor. (Those who do extremely well in 111 should take 122 instead of 112.) Fall term: lectures, T Th 11:15 and recitations to be arranged. F. Spitzer. Spring term: lectures, T Th 11:15, 12:20, and recitations to be arranged. Preliminary examinations will be given some Tuesday evenings. A. Torchinsky and R. Hamilton.

Applications of integration, techniques of integration, infinite series, multiple integrals, brief introduction to partial derivatives.

214-215-216-218. Either term. Credit one hour each. Prerequisite: Mathematics 112 or 122. These courses are taught as a unified package in the expected order 214-218-216-215 for three or four weeks each. Students may register for any subset of these courses, in accordance with their interests and needs. If in doubt as to choices, they should consult with their adviser and the course instructor. (The three-credit group 214-216-218 is equivalent to the course previously offered as 213.) All students should attend the first lecture of the semester to learn the dates for each course, the examination dates, and the structure of the whole. Lectures T Th S 11:15 and one two-hour recitation to be arranged. Fall term: D. Singer. Spring term: K. Brown.

Details and additional prerequisites follow.

214 Introduction to Differential Equations Complex numbers and functions. Simple first and second order equations with applications.

215 Differential Equations Prerequisite: Mathematics 214. Introduction to numerical methods of solution, systems of differential equations, elementary partial differential equations, and boundary value problems. Applications.

216 Vectors and Line Integrals Prerequisite: Mathematics 218. Vectors, matrices, gradients, line integrals.

218 Partial Derivatives and Extremal Problems Partial derivatives, chain rule for functions of several variables, max-min problems in several variables, Lagrange multipliers.

201 Mathematics for Social Scientists Fall term. Credit four hours. M W F 11:15 and one hour to be arranged. Primarily intended for first-year graduate students in the social sciences. D. W. Henderson.

The elements of set theory, vectors and matrices, probability, and rudimentary calculus. Problems will be drawn from the social sciences.

122 Calculus Either term. Credit three hours. Prerequisite: performance at a high level in Mathematics 111 or consent of the Department. Fall term: M W F 10:10, 11:15. K. Brown and A. Edmonds. Spring term: M W F 9:05, 10:10. A. Jategaonkar and G. Cooke.

Differentiation and integration of elementary transcendental functions, the techniques of integration, applications, polar coordinates, and infinite series. The approach is more theoretical than in 112.

221 Calculus Either term. Credit four hours. Prerequisites: grade of B or better in Mathematics 122 or exceptional performance in 112 and consent of the instructor. Fall term: M W F 9:05. J. Rinnot. M W F 11:00 R. Shore and W. Waterhouse. Spring term: M W F 10:10. L. Wahlbin. M W F 11:15. J. West.

Linear algebra and differential equations. Topics include vector algebra, linear transformations, matrices, linear differential equations.

222 Calculus Either term. Credit four hours. Prerequisite: Mathematics 221. Fall term: M W F 11:15, 12:20. J. Rinnot and K. Brown. Spring term: M W F 10:10. H. C. Wang and S. Lichtenbaum. M W F 12:20. G. Cooke.

Vector differential calculus, calculus of functions of several variables, multiple integrals.

191 Calculus for Engineers Either term. Credit four hours. Prerequisite: three years of high school mathematics, including trigonometry. Fall term: lectures, M W F 9:05, 11:15, and recitation periods to

be arranged. M. E. Sweedler. Spring term: M W F 9:05 and one hour to be arranged.

Plane analytic geometry, differential and integral calculus and applications.

192 Calculus for Engineers Either term. Credit four hours. Prerequisite: Mathematics 191. Fall: M W F 11:15 and recitation periods to be announced. S. Gelbart. Spring: M W F 9:05, 11:15, and recitation periods to be announced. S. Gelbart and J. West. Preliminary examinations will be held evenings of September 18, October 9, October 30, November 27, February 26, April 2, April 30.

Transcendental functions, technique of integration and multiple integrals, vector calculus, analytic geometry in space, partial differentiation, applications.

193 Calculus for Engineers Fall term. Credit four hours. Prerequisites and examination dates same as for 191. Lectures, M W F 11:15, and two one-hour recitations to be arranged. A. W. Knapp.

Covers contents of Mathematics 191 in more detail and includes more theoretical material.

194 Calculus for Engineers Spring term. Credit four hours. Prerequisite: recommendation of the lecturer in Mathematics 191. Lectures, M W F 9:05, and recitation periods to be arranged. Preliminary examinations will be held evenings of February 26, April 2, April 30. A. Nerode.

Covers contents of Mathematics 192 in more detail and includes more theoretical material.

293-295 Engineering Mathematics Either term. Credit four hours. Prerequisite: Mathematics 192 or 194. 293 fall term lectures, M W F 10:10, 12:20, and recitation periods to be arranged. H. Kesten and M. Morley. Spring term lectures, M W F 10:10, 12:20, and recitation periods to be arranged. 295 is an honors section offered in the fall only, lectures M W F 12:20 and recitation periods to be arranged. Preliminary examinations will be held on the evenings of October 1, October 29, December 3, February 25, April 1, April 29.

Vectors and matrices, first-order differential equations, infinite series, complex numbers, applications. Problems for programming and running on the automatic computer will be assigned, and students are expected to have a knowledge of computer programming equivalent to that taught in Engineering IBE 105. For more details about 295 see the *Engineering Announcement*.

294 Engineering Mathematics Either term. Credit three hours. Prerequisite: Mathematics 293. Fall term: lectures M W 12:20 and recitation to be arranged. L. Payne. Spring term: lectures M W 10:10, 12:20, and recitations to be arranged. A. Schatz. Preliminary examinations will be held evenings of October 1, October 29, December 3, February 25, April 1, April 29.

Linear differential equations, quadratic forms and eigenvalues, differential vector calculus, and applications.

296 Engineering Mathematics Spring term. Credit four hours. Prerequisite: Mathematics 295 or consent of the instructor. M W F 12:20 and one hour to be arranged.

Honors section of 294. For more details consult the *Engineering Announcement*.

Applied Mathematics and Differential Equations

[305 Mathematics in the Real World Spring term. Credit three hours. Prerequisite: Mathematics 222 or 294 or consent of the instructor; coregistration in 331, 315, or 422 might be useful. Not offered in 1974-75.]

315 Higher Calculus Spring term. Credit three hours. Prerequisite: Mathematics 213 or Mathematics 214-216-218. M W F 12:20. K. Ito.

Intended for students who have had only three semesters of calculus. It does not prepare for 415-416 and will not meet the needs of those graduate students whose work requires really serious application of mathematical methods. Vector analysis. Elements of complex variables. Ordinary and partial differential equations. Fourier series. Special functions. Laplace transforms. Emphasis is placed on a wide range of formal applications of the calculus rather than on the logical development.

415-416 Mathematical Methods in Physics 415 fall term only; 416 spring term only. Credit four hours a term. Intended for graduate students in physics or related fields who have had a strong advanced calculus course and at least two years of general physics. The course goes very quickly, covering in two semesters slightly more than 421-422-423. Undergraduates will be admitted only with consent of the instructor. First term prerequisite to the second. T W Th F 12:20. W. Fuchs.

Lectures and problem work designed to give a working knowledge of the principal mathematical methods used in advanced physics. Topics include a brief discussion of some basic notions: metric space, vector space, linearity, continuity, integration. Generalized functions (Schwartz distributions). Fourier series and Fourier integrals. Elementary complex variables. Saddle point method. Linear transformations in finite and in infinite-dimensional spaces. Matrices. Differential operators and integral operators, the equations and eigenvalue problems connected with them and the special functions arising from them. Elements of group theory. The rotation group and its representations.

421 Applicable Mathematics Either term. Credit four hours. Prerequisites: any of the following at a high level of performance: 222 or 294 or 213 and 331, or 214-216-218 and 331. T W Th F 12:20. Fall term: R. Livesay. Spring term: L. Brown. Graduate students who need mathematics extensively in their

work and who have had a solid advanced calculus course as undergraduates should take 415-416. If they have not had such an advanced calculus course they should take 421-422-423. If their preparation is still too weak for this, they should take all or part of 221-222, followed by 421-422-423.

Theorems of Stokes, Green, Gauss, etc. Sequences and infinite series. Fourier series and orthogonal functions. Ordinary and partial differential equations.

422 Applicable Mathematics Spring term. Credit four hours. Prerequisite: Mathematics 421. T W Th F 12:20. R. Livesay.

Complex variables. Generalized functions. Fourier and Laplace transforms.

423 Applicable Mathematics Fall term. Credit four hours. Prerequisite: Mathematics 421. T W Th F 12:20. J. Bramble.

Linear operators and integral equations. Calculus of variations. Application to eigenvalue problems. Green's function, and treatment of special problems of mathematical physics.

427 Introduction to Ordinary Differential Equations Fall term. Credit four hours. Prerequisite: Mathematics 222 or 294 or consent of instructor. M W F 9:05. L. Payne.

Covers the basic existence, uniqueness, and stability theory together with methods of solution and methods of approximation. Topics include singular points, series solutions, Sturm-Liouville theory, transform methods, approximation methods, and application to physical problems.

428 Introduction to Partial Differential Equations Spring term. Credit four hours. Prerequisite: Mathematics 222 or 294 or consent of instructor. M W F 9:05. L. Payne.

Primarily a study of the Laplace, heat, and wave equations. Topics include maximum principles, existence, uniqueness, stability, Fourier series methods, approximation methods, and applications.

Analysis

311 Elementary Analysis Fall term. Credit four hours. Prerequisite: Mathematics 213 or 214-216-218. M W F 12:20. A student may not receive credit for both 311-312 and 411-412. R. Connelly.

A careful study of the topology of the real line. Functions: theory of continuous functions of one real variable. Differentiation and integration of such functions. Series and sequences. The material of 311-312 is similar to that of 411-412 below, but is taught at a more elementary level and at a slower pace.

312 Elementary Analysis Offered spring term 1975 and only in spring of odd numbered years thereafter. Credit four hours. Prerequisites: Mathematics 311 and a knowledge of linear algebra as taught in 331. M W F 12:20. R. Connelly.

Functions of several variables.

411-412 Introduction to Analysis 411 fall term only; 412 spring term only. Credit four hours a term. Prerequisite: Mathematics 222. Fall: T Th S 10:10. W. Waterhouse. M W F 10:10. S. Gelbart. Spring: T Th S 10:10. W. Waterhouse. M W F 10:10. S. Gelbart.

An introduction to the theory of functions of real variables, stressing rigorous logical development of the subject rather than technique of applications. Topics include metric spaces, the real number system, continuous and differentiable functions, integration, convergence and approximation theorems. Fourier series, calculus in several variables and differential forms.

Students needing measure theory and Lebesgue integration for advanced statistics courses such as Mathematics 571 should take 413-414 or arrange to audit the first few weeks of 521.

413-414 Introduction to Analysis 413 fall term only; 414 spring term only. Credit four hours a term. Prerequisite: Mathematics 222. T Th S 10:10. Honors section of 411-412. A. Torchinsky.

Course will also cover parts of measure theory and Lebesgue integration.

418 Introduction to the Theory of Functions of One Complex Variable Spring term. Credit four hours. Prerequisite: Mathematics 222 or 312. M W F 9:05.

A rigorous introduction to complex variable theory. Intended mainly for undergraduates and for graduate students outside mathematics; graduate students in mathematics desiring a first course in complex variable should take 511-512. Complex numbers. Differential and integral calculus for functions of a complex variable including Cauchy's theorem and the calculus of residues. Elements of conformal mapping. Elements of several complex variables.

Algebra

331 Linear Algebra Fall term. Credit four hours. Prerequisite: one year of calculus. A student may not receive credit in both Mathematics 221 and 331. M W F 10:10. A. Edmonds.

Vectors, matrices, and linear transformations, affine and Euclidean spaces, transformation of matrices, and eigenvalues.

332 Algebra and Number Theory Spring term. Credit four hours. Prerequisite: one year of calculus. M W F 10:10. A. Edmonds.

Commutative rings with unity, fields, and finite groups. Motivations and examples are mostly derived from arithmetical problems on the integers or congruence classes of integers. Course 332 will not serve as a prerequisite for courses numbered 500 or higher.

431 Introduction to Algebra Fall term. Credit four hours. Prerequisite: Mathematics 221 or 331. M W F 9:05. K. Dennis. M W F 10:10. S. Chase.

An introduction to linear algebra, including the study of vector spaces, linear transformation, matrices, and systems of linear equations; quadratic forms and inner product spaces; canonical forms for various classes of matrices and linear transformations; determinants.

432 Introduction to Algebra Spring term. Credit four hours. Prerequisite: Mathematics 431. M W F 10:10. A. Jategaonkar.

An introduction to various topics in abstract algebra, including groups, rings, fields. factorization of polynomials and integers, congruences, and the structure of finitely generated abelian groups.

433 Honors Section of 431 Fall term. Credit four hours. Prerequisite: Mathematics 221 or 331. M W F 10:10. S. Sen.

Will treat topics of 431 from a more theoretical and rigorous viewpoint, and will include additional material such as multilinear and exterior algebra.

434 Honors Section of 432 Spring term. Credit four hours. Prerequisite: Mathematics 433. M W F 10:10. S. Sen.

Will cover the topics of 432 from a more theoretical and rigorous viewpoint, plus additional material such as the structure of finitely generated modules over a principal ideal domain with applications to canonical forms for matrices.

Geometry and Topology

451-452 Classical Geometries 451 fall term only; 452 spring term only. Credit four hours a term. Prerequisite: Mathematics 221 or 331 or 431, which may be taken concurrently. First term prerequisite to the second. M W F 3:35. Fall term: D. Henderson. Spring term: D. Singer.

Axiomatic methods in geometry. Foundations of Euclidean geometry. Non-Euclidean geometry, projective geometry, and other geometric theories.

453-454 Introduction to Topology and Geometry 453 fall term only; 454 spring term only. Credit four hours a term. Prerequisites: Mathematics 412 and 432, or consent of the instructor. T Th S 11:15. Fall term: G. E. Cooke. Spring term: D. Singer.

453: basic point set topology, connectedness, compactness, metric spaces, fundamental group. Application of these concepts to surfaces such as the torus, the Klein bottle, the Moebius band. 454: classical differential geometry of curves and surfaces in three dimensional space.

Probability and Statistics

370 Elementary Statistics Spring term. Credit four hours. A terminal course for those who will take

no further work in this area. Prerequisite: Mathematics 112, 122, or 192; or 106 or 108 with consent of instructor. M W F 11:15. Preliminary examinations will be held evenings of February 26, April 2, and April 30. L. Brown.

Topics in probability which are essential to an understanding of statistics; introduction to the principles underlying modern statistical inference and the rationale underlying choice of statistical methods in various situations.

371 Basic Probability Fall term. Credit four hours. Can serve as a terminal course in basic probability but is primarily intended for those who will continue with 472. Prerequisite: Mathematics 112 or 222. M W F 11:15. Preliminary examinations will be held evenings of October 2, October 30, and December 4. F. L. Spitzer.

Topics covered include combinatorics, important probability laws, expectations, moments, moment generating functions, limit theorems. Emphasis is on diverse applications and on development of use in statistical applications. See also the descriptions of 370 and 571.

472 Statistics Spring term. Credit four hours. Prerequisite: Mathematics 371 and knowledge of linear algebra such as taught in 221. M W F 11:15. Preliminary examinations will be held evenings of February 26, April 2, and April 30. J. Rinott.

Classical and recently developed statistical procedures are discussed in a framework which emphasizes the basic principles of statistical inference and the rationale underlying the choice of these procedures in various settings. These settings include problems of estimation, hypothesis testing, large sample theory. See also the description of 370.

473 Further Topics in Statistics Fall term. Credit four hours. Prerequisite: Mathematics 472 or 574. M W F 10:10. L. Brown.

More detailed discussion of some of the topics not covered at length in 472. Design and analysis of experiments. Multivariate analysis. Nonparametric inference; robustness. Sequential analysis. (This course will hereafter be taught annually, at the level and in the spirit of 472. For corresponding subject matter taught with more mathematical detail, see descriptions of 573, 674, 575, and 577).

Mathematical Logic

381 Elementary Mathematical Logic Spring term. Credit four hours. Prerequisite: Mathematics 122 or 200. M W F 11:15. A. Nerode.

Propositional and predicate logic. Completeness and incompleteness theorems. Set theory.

Modern Foreign Languages and Literatures

The Department of Modern Languages and Linguistics (G. B. Kelley, chairman) offers courses in linguistics, and elementary, intermediate, and advanced language courses although literature departments also offer some language courses. For course listings, see the separate language headings in this section.

For fulfillment of the language requirement for graduation and for attainment of Qualification see p. 14. S-U options as explained on p. 17 of this *Announcement* may be chosen for all courses offered by the Department except for German 101-102 and Burmese, Thai, and Vietnamese.

The Department of German Literature (S. L. Gilman, chairman) offers courses in German literature (listed under German below).

The Department of Romance Studies (P. E. Lewis, chairman) offers courses in French literature, Italian literature, and Spanish literature (listed under French, Italian, and Spanish below). In addition, the Department's program seeks to encourage study of the interactions of the Romance literatures among themselves and with other literatures, both in its course offerings and in opportunities for independent study. Each term one course will be offered in English which emphasizes comparative and methodological questions (for 1974-75 see Romance Studies 391, p. 146, and French 375, p. 135.)

The Department of Russian Literature (P. J. Carden, chairman) offers courses in Russian literature (listed under Russian below).

Courses in Swahili are offered by the Africana Studies and Research Center (see Africana Studies, p. 187). Courses in Greek and Latin are offered by the Department of Classics (see Classics, p. 69). Courses in Arabic, Aramaic, and Hebrew are offered by the Department of Semitic Languages and Literatures (see Semitics, p. 174.)

Course Placement

See Advanced Placement. Modern Foreign Languages, p. 20.

Burmese

R. B. Jones, Jr.

101-102 Basic Course 101 fall term only, 102 spring term only. Credit six hours a term. M-F 11:15, T Th 10:10.

201-202 Burmese Reading 201 fall term only; 202 spring term only. Credit three hours a term. Prerequisites: for 201, qualification in Burmese; for 202, Burmese 201. Hours to be arranged.

203-204 Composition and Conversation 203 fall term only; 204 spring term only. Credit three hours a term. Prerequisites: for 203, Qualification in Burmese; for 204, Burmese 203. Hours to be arranged.

301-302 Advanced Burmese Reading 301 fall term only; 302 spring term only. Credit four hours a term. Prerequisite: Burmese 201-202 or the equivalent. Hours to be arranged.

Selected readings in Burmese writings in various fields.

Cambodian

F. E. Huffman.

101-102 Basic Course 101 fall term only; 102 spring term only. Credit six hours a term. M-F 8:30-10.

201-202 Cambodian Reading 201 fall term only; 202 spring term only. Credit three hours a term. Prerequisites: for 201, Qualification in Cambodian; for 202, Cambodian 201. Hours to be arranged.

203-204 Composition and Conversation 203 fall term only; 204 spring term only. Credit three hours a term. Prerequisites: for 203, Qualification in Cambodian; for 204, Cambodian 203. Hours to be arranged.

301-302 Advanced Cambodian 301 fall term only; 302 spring term only. Credit four hours a term. Prerequisite: Cambodian 201-202 or the equivalent. Hours to be arranged.

401-402 Directed Individual Study 401 fall term only; 402 spring term only. For advanced students. Credit four hours a term. Prerequisite: consent of the instructor.

404 Structure of Cambodian Spring term only. Credit four hours. Prerequisite: Linguistics 101-102 or the equivalent. Hours to be arranged.

Cebuano (Bisayan)

J. U. Wolff.

[**101-102 Basic Course** 101 fall term only; 102 spring term only. Credit six hours a term. Offered according to demand. Hours to be arranged. Not offered in 1974-75.]

Chinese

N. C. Bodman, S. L. Fessler, J. McCoy, T. L. Mei, P. S. Ni, A. R. Walton, P. Wang, K. M. Wong.

For a major involving Chinese studies see Asian studies.

Languages and Linguistics

101-102 Basic Course 101 fall term only; 102 spring term only. Credit six hours a term. M-F 8, M W F 9:05.

111-112 Cantonese Basic Course 111 fall term only; 112 spring term only. Credit six hours a term. Prerequisite: consent of the instructor. Hours to be arranged. J. McCoy.

131-132 Elementary Hokkien Chinese 131 fall term only; 132 spring term only. Credit three hours a term. Prerequisite: consent of the instructor. M-F 11:15. N. C. Bodman.

201-202 Intermediate Chinese I 201 fall term only; 202 spring term only. Credit four hours a term. Prerequisite: Qualification in Chinese. M-F 9:05.

203-204 Chinese Conversation 203 fall term only; 204 spring term only. Credit one hour a term. Prerequisite: Chinese 101-102. Two class hours. May be repeated for credit. Only grades of S and U will be given.

Guided conversation and oral composition and translation. Corrective pronunciation drill.

211-212 Intermediate Cantonese 211 fall term only; 212 spring term only. Credit four hours a term. Prerequisite: Cantonese 112 or consent of the instructor. Hours to be arranged. J. McCoy.

213-214 Introduction to Classical Chinese 213 fall term only; 214 spring term only. Credit three hours a term. Prerequisite: Qualification in Chinese or consent of instructor. This course may be taken concurrently with Chinese 101-102, 201-202, or 301-302. T Th 10:10 and an additional hour to be arranged. K. M. Wong.

301 Intermediate Chinese II Fall term. Credit four hours. Prerequisite: Chinese 202 or equivalent. M W F 10:10.

Readings and drill in modern expository Chinese.

302 Intermediate Chinese III Spring term. Credit four hours. Prerequisite: Chinese 301. M W F 10:10.

Readings in modern Chinese with social science and humanities content.

303-304 Chinese Conversation—Intermediate 303 fall term only; 304 spring term only. Credit one hour a term. Prerequisite: Chinese 201-202. Hours to be arranged. May be repeated for credit. Only grades of S and U will be given.

Guided conversation and oral composition and translation. Corrective pronunciation drill.

401-402 History of the Chinese Language 401 fall term only; 402 spring term only. Credit four hours a term. Prerequisite: consent of the instructor. W 2:30-4:25. N. C. Bodman.

403 Linguistic Structure of Chinese: Phonology and Morphology Fall term on student demand. Credit four hours. Prerequisite: consent of the instructor. T 2:30-4:25. N. C. Bodman.

[404 Linguistic Structure of Chinese: Syntax] Spring term on student demand. Credit four hours. Prerequisite: Chinese 403. T 2:30-4:25. J. McCoy. Not offered in 1974-75.]

405 Chinese Dialects Fall term on student demand. Credit four hours. Prerequisite: consent of the instructor. Th 2:30-4:25. N. C. Bodman.

Emphasis on comparative and contrastive phonology.

607 Chinese Dialect Seminar Either term on student demand. Credit four hours. Prerequisites: Chinese 405 and consent of the instructor. Hours to be arranged. N. C. Bodman or J. McCoy.

Analysis and/or field techniques in a dialect area.

Sino-Tibetan Linguistics (Linguistics 662).

Literature

314 Chinese Philosophical Texts Spring term. Credit four hours. Prerequisite: Chinese 214. M W F 11:15. T. L. Mei.

320 T'ang and Sung Poetry Fall term. Credit four hours. Prerequisite: consent of the instructor. M W F 1:25. T. L. Mei.

411-412 Readings in Modern Chinese Literature 411 fall term only; 412 spring term only. Credit four hours a term. Prerequisite: Chinese 302. M W F 1:25.

413 Classical Chinese Prose Fall term. Credit four hours. Prerequisite: Chinese 214. M W F 11:15.

[416 Pre-T'ang Poetry] Spring term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. T. L. Mei. Not offered in 1974-75.]

418-419 Chinese Poetic Drama 418 spring term only; 419 fall term only. Credit four hours a term. Prerequisite: consent of the instructor. Hours to be arranged. K. M. Wong.

420 Traditional Fiction Spring term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. K. M. Wong.

421-422 Directed Study 421 fall term only; 422 spring term only. Credit two to four hours a term. Prerequisite: consent of the instructor. Hours to be arranged. Staff.

[423 Readings in Shorter Works of Fiction] Fall term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. K. M. Wong. Not offered in 1974-75.]

424 Readings in Literary Criticism Spring term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. T. L. Mei.

430 Readings in Folk Literature Either term on student demand. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. J. McCoy.

For complete descriptions of courses numbered 600 or above see the *Announcement of the Graduate School: Course Descriptions*. If a course is not included there, consult the graduate field representative.

[603 Seminar in Chinese Poetry and Poetics] Fall term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. T. L. Mei. Not offered in 1974-75.]

[605 Seminar in Chinese Fiction] Fall term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. K. M. Wong. Not offered in 1974-75.]

[609 * Seminar in Chinese Folk Literature] Either term on student demand. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. J. McCoy. Not offered in 1974-75.]

621-622 Advanced Directed Reading 521 fall term only; 522 spring term only. Credit and hours to be arranged. Prerequisite: consent of the instructor. J. McCoy, T. L. Mei, and K. M. Wong.

Falcon

161-162 Intensive Mandarin Course 161 fall term only, equivalent to first eighteen credit hours of instruction in regular program; 162 spring term only, equivalent to second eighteen credit hours of instruction in regular program. M-F 8:00-2:30 and five hours to be arranged. J. McCoy and staff.

Dutch

F. C. van Coetsem.

131-132 Elementary Reading Course I 131 fall term only; 132 spring term only. Credit three hours a term. Prerequisite: consent of the instructor. Hours to be arranged.

133-134 Elementary Reading Course II 133 fall term only; 134 spring term only. Credit three hours a term. Prerequisite: Dutch 132 or consent of the instructor. Hours to be arranged.

Seminar in Dutch Linguistics (German 740)**English as a Second Language**

C. E. Elliott, M. A. Martin.

The following courses are offered by the Department of Modern Languages and Linguistics. Foreign students should consult a member of the Department (203 Morrill Hall) to arrange for placement in courses suited to their competence in the English language.

102 English as a second Language Fall term. Credit six hours. Prerequisite: placement by the instructor. M T W Th F 9:05 and two hours to be arranged.

103 English as a Second Language Spring term. Credit three hours. Prerequisite: English 102 or placement by the instructor. M W F 2:30.

A course designed for those who have completed English 102 and who require or desire further practice in English. Emphasis is on developing control of written as well as spoken language.

211-212 English as a Second Language 211 fall term only; 212 spring term only. Credit three hours a term. Prerequisite: placement by the instructor. M W F 11:15 or 2:30.

213 English for Nonnative Speakers Spring term. Credit three hours. Prerequisite: English 212 or placement by the instructor. T Th 1:25.

Designed for nonnative speakers of English whose fluency is sufficient for them to carry on regular academic work, but who feel the need for refining and developing their ability to express themselves clearly and effectively. Writing style and the effect of some of the less obvious syntactic constructions will be emphasized. As much as possible, individual attention will be given to students in two class hours and a weekly interview.

French

J. Béreaud, A. M. Colby, P. Coleman, S. Durham, N. Furman, D. I. Grossvogel, J. Harari, P. Lewis, S. A. Littauer, E. P. Morris, J. S. Noblitt, A. Seznec, L. R. Waugh.

French Major

The French major is designed to give students proficiency in the oral and written language, to acquaint them with a fair portion of the masterworks of French literature, and to develop skills in literary and linguistic analysis.

Students wishing to major in French should consult a member of the French faculty with whom they will work out plans of studies. The previous training and interests of students will be taken into account in order to devise a coherent program. They will be encouraged to take courses in related subjects such as

anthropology, music, history, art history, philosophy, linguistics, Classics, English, comparative literature, and other foreign languages and literatures.

Interested students are encouraged to seek faculty advice about the major as early as possible. For admission to a major in French, students should normally have completed French 201, 202, and 211-212 or 203-204, or their equivalents, and should be accepted by the director of undergraduate studies, J. Béreaud. Students specifically interested in French linguistics should consult with L. Waugh in the Department of Modern Languages and Linguistics.

To fulfill the major requirements, students are expected to complete successfully twenty-four hours of French literature courses at the 300 level or higher. Students seeking teacher certification may substitute one term of French 401-402 or 403 for four hours of the twenty-four required. One or more courses offered by the Department of Comparative Literature may be counted toward the required twenty-four hours if students obtain prior approval of their major advisers. Students majoring in French will also be expected to develop competence in the language. The competence is demonstrated by the successful completion of French 312 or by the passing of a special examination to be taken no later than the end of the junior year. French majors may elect to pursue a concentration of courses in language and linguistics, dividing their twenty-four additional hours of 300- and 400-level courses equally between literature and linguistics, in which case they may choose a major adviser from the Department of Modern Languages and Linguistics. For any question concerning placement in the language courses within the Department of Romance Studies, please consult J. Béreaud, who will arrange a placement test whenever necessary.

French majors may study in France during their junior year under any of several study-abroad plans which are recognized by the Departments of Romance Studies or Modern Languages and Linguistics and which allow the transfer of credit. The Department of Romance Studies has information on such plans.

The Honors Program

The purpose of the Honors Program is to encourage well-qualified students to do independent work in French, outside the structure of courses. The preparation of the senior honors essay, in particular, spread out over three terms, provides a unique learning opportunity, since it allows for wide reading, careful outlining, and extensive rewriting to a degree not practically possible in the case of course papers. At each stage of their work the students will have regular weekly meetings with faculty tutors.

No special seminars or courses are required of honors students. The junior tutorial (ordinarily, two terms; exceptionally, one) will be devoted to intensive study of selected problems or authors, and to the choice of a topic for the honors essay; the senior tutorial, to the writing of that essay. Honors students may be released from one or two courses in either

the junior or senior year to have adequate time for honors work (credit is obtained by enrolling in French 419-420). They will take an informal oral examination at the end of the senior year.

Honors students are selected on the basis of their work in French language and literature courses in the freshman and sophomore years. Students interested should consult A. Seznec for details, no later than the spring term of the sophomore year, and earlier if possible. Honors in French linguistics will be supervised by L. Waugh.

Teacher Preparation Programs

Cornell offers two teacher preparation programs in modern languages; one at the graduate level (M.A.T.) and one at the undergraduate level (leading to provisional certification, valid for five years). For information, consult either the Department of Modern Languages and Linguistics or the Department of Romance Studies.

Distribution Requirement

The distribution requirement in the humanities in French is satisfied by French 201 and 202, 222, or any 300-level course.

Of the courses listed below, those dealing with literature, together with language courses 200, 211-212, and 311-312, are staffed and administered by the Department of Romance Studies, and inquiries in regard to them should be addressed to that Department, 278 Goldwin Smith Hall. The courses dealing with linguistics and the other language courses are offered by the Department of Modern Languages and Linguistics, Morrill Hall.

Languages and Linguistics

101-102 Basic Course (Conversation and Reading) 101 fall term only; 102 spring term only. Credit six hours a term. Assumes no knowledge of French. Students who have previously studied French should consult p. 20 before registering for this course. Drill, M-F 8, 9:05, 10:10, 11:15, 1:25. Lecture T Th 9:05, 1:25.

This is a semi-intensive course which gives a thorough grounding in the language—listening, speaking, reading, and writing. It is conducted in small groups with opportunity for contact with native speakers of the language and laboratory work. (See also French 131-132.)

131-132 Elementary Reading Course I 131 fall term only; 132 spring term only. Credit three hours a term. Assumes no knowledge of French; students who have previously studied French should consult p. 20 before registering for this course. M W F 9:05, 10:10, 11:15, 12:20, 1:25, 2:30.

The aim of this course is primarily to develop skill in reading, although some attention will be devoted to the spoken language, especially to listening comprehension. (See also French 101-102.)

133-134 Elementary Reading Course II 133 fall term only; 134 spring term only. Credit three hours a term. Prerequisite: French 132 or the equivalent. M W F 9:05, 10:10, 11:15, 1:25, 2:30.

Grammar review and further reading.

200 Intermediate Course Either term. Credit three hours. Prerequisite: Qualification in French (for definition of Qualification, see p. 14). Fall term: M W F 9:05, 10:10, 11:15, 12:20, 1:25 or T Th 8:40-9:55 and 12:20-1:35. Staff. [Offered by Romance Studies.]

Extended readings and discussions of modern texts selected for their cultural and humanistic value. A brief review of grammar is included.

203 Intermediate Course (Conversation) Either term. Credit three hours. Prerequisite: Qualification in French (for definition of Qualification, see p. 14). Fall term: M W F 9:05, 10:10, 11:15, 12:20, 1:25, 2:30; lecture, W 10:10, W 11:15, T 10:10, or T 1:25. Spring term: M W F 9:05, 10:10, 12:20, 1:25; lecture, W 11:15 or T 1:25.

Emphasis is placed upon increasing the student's oral command of French. Guided conversation, composition, reading, pronunciation, and grammar drill.

204 Intermediate Composition and Conversation Spring term. Credit three hours. Prerequisite: French 203 or equivalent. M W F 8, 9:05, 10:10, 11:15, 12:20, 1:25; lecture, W 1:25 or T 10:10, or T 2:30. Evening prelims.

Continuation of the work of French 203, with special attention to accurate and idiomatic expression in French. Oral and written drill.

211-212 Intermediate French Throughout the year. Credit three hours a term. Prerequisite: Qualification in French (for definition of Qualification, see p. 14). M W F 11:15 or T Th 10:10-11:25. N. Furman. [Offered by Romance Studies.]

Review of French grammar and study of the language through the critical reading of texts on French culture and literature. Students will write short essays in French. In addition, there will be one hour of conversation per week in small groups.

311-312 Advanced Composition and Conversation Throughout the year. Credit four hours a term. Prerequisite: French 212 or 204, or placement by special examination. Fall term: M W F 9:05 and 11:15. Spring term: T Th 10:10-11:25. J. Béreaud and A. Seznec. [Offered by Romance Studies.]

Reading and analysis of selected contemporary texts. Detailed study of present-day syntax. Weekly translations or essays in French. One hour of conversation each week in small groups. In the first semester the focus will be on French civilization; in the second se-

mester more emphasis will be placed on literary texts and intellectual issues. Class discussion conducted in French.

[401-402 History of the French Language 401 fall term only; 402 spring term only. Credit four hours a term. Prerequisite: Qualification in French, and Linguistics 101. M W 2:30-3:45. S. Durham. Not offered in 1974-75.]

407 French for Teachers Fall term. Credit four hours. Prerequisite: Qualification in French. M W 3:35-5. Staff.

Survey of the current teaching methods, preparation of teaching materials, selection and use of textbooks and realia. Further study of structure of French as needed for professional preparation. Required of students seeking certification by New York State.

408 Linguistic Structure of French Spring term. Credit four hours. Prerequisite: Qualification in French, and Linguistics 101 or consent of the instructor. M W 3:35-5. Staff.

A descriptive analysis of present-day French, with emphasis on its phonetics, phonemics, morphology, and syntax. Required of students seeking certification by New York State.

410 Semantic Structure of French Fall or spring term, alternate years. Credit four hours a term. Prerequisite: consent of the instructor. Open to undergraduate and graduate students. To be given fall 1974. T Th 2:30-4:00. L. R. Waugh.

Introduction to Jakobsonian semantic theory and an analysis of the semantic structure of contemporary French with regard in particular to the morphological, lexical, and syntactic levels.

424 Composition and Style Spring term. Credit four hours. Prerequisite: French 312 or placement by special examination by the Department of Romance Studies. T Th 12:20-1:35. J. Béreaud.

Written work will include review of some areas of advanced grammar, the theory and practice of translation, pastiches of certain French authors. The oral work will aim at enabling students to deliver a short and correct communication in the foreign language. Weekly papers, *explications de texte*, and exposés on cultural problems.

450 Practice Teaching Either term. Credit six hours. Prerequisite: French 403 (the methods course, French 404, may be taken concurrently with practice teaching). Open only to students enrolled in a teacher preparation program.

Students will observe, and then participate in, teaching classes in the secondary school system. They will also become acquainted with a language laboratory.

For complete descriptions of the courses numbered 600 or above, consult the graduate field representative.

[601 Gallo-Romance Dialectology Fall term. Credit four hours. Prerequisite: consent of the instructor. T Th 2:30. Offered in alternate years. S. Durham. Not offered in 1974-75.]

602 Linguistic Structures of Old and Middle French Spring term. Credit four hours. Prerequisite: French 403 or consent of the instructor. T Th 3:35-4:50. J. S. Noblitt.

The Comparative Study of the Romance Languages (Romance Linguistics 321-322, 323-324, 620, 621, 622).

700 Seminar in French Linguistics According to demand. Credit four hours a term. Hours to be arranged. Staff.

Literature

105 Freshman Seminar: The Evolution of the French Novel Fall term. Credit three hours. M W F 1:25. A. Colby.

The evolution of the French novel from the seventeenth to the twentieth century. Readings will include the novels of such writers as Madame de Lafayette, Laclos, Balzac, Stendhal, Flaubert, Zola, Gide, Sartre, and Robbe-Grillet. All texts will be read in English translation.

201 Introduction to French Literature: The Modern Tradition Either term. Credit three hours. Prerequisite: a score of 630 on the written part of the College Board Achievement Test; the ability to read literary French with some facility is presupposed. French 201 serves as prerequisite for all 300-level courses in French literature and is required of all majors. Fall term: M W F 9:05, 10:10, 11:15, 12:20, 1:25, 2:30, or T Th 8:40-9:55 and 10:10-11:25. Spring term: M W F 11:15 or T Th 10:10-11:25. J. Béreaud, P. Coleman, N. Furman, D. Grossvogel and staff.

Introduces the student to the major genres (poetry, drama, and the novel) in the late nineteenth and early twentieth centuries, and treats the principal themes, techniques, and interpretive dilemmas encountered in modern French literature. Readings will include Baudelaire, *Les Fleurs du mal*; Mallarmé, *Poésies choisies*; Beckett, *En Attendant Godot*; Genet, *Le Balcon*; Proust, *Combray*; Sartre, *La Nausée*.

202 Studies in French Literature Spring term. Credit three hours. Prerequisites: for majors, French 201; for nonmajors, a score of 630 on the College Board Achievement Test. Required of all majors but not limited to them. M W F 11:15 or T Th 10:10-11:25. J. Harari and staff.

Study of tragedies, comedies, essays, and narrative works of the classic literature of seventeenth-century France, and its immediate forebears (Montaigne) and successors (Diderot, Rousseau). Texts will be studied in relation to their social and historical context: au-

thors such as Ronsard, Racine, Mme de Lafayette, Diderot, etc., will be read.

354 Montaigne Spring term. Credit four hours. T Th 1:25-2:40. P. Lewis.

Reading of the three books of Montaigne's *Essais*. Emphasis will be placed on Montaigne's invention and development of the essay as a literary genre; on his place in sixteenth-century politics, culture, and thought; on his anticipations of some central themes of modern thought (existentialist views of the self; the unconscious; theories of ritual; recent theories of language, writing, and texts). History of modern Montaigne scholarship, and of the establishment of the text; parallel readings in such authors as Plato, Plutarch, Descartes, Pascal, Freud, Sartre, Merleau-Ponty, Lévi-Strauss. Conducted in French.

362 French Comedy from Jodelle to Beaumarchais Spring term. Credit four hours. M W F 11:15. A. Seznec.

Readings will include works by late sixteenth-century authors through Corneille, Scarron, and Molière, to Régner, Marivaux, and Beaumarchais.

369 The Age of Louis XIV Fall term. Credit four hours. M W F 11:15. A. Seznec.

French literature and the arts between 1661 and 1715. Readings will include works by Bossuet, Boileau, Fénelon, Fontenelle, Bayle as well as Racine, Molière, Madame de Lafayette, La Fontaine, Madame de Sévigné, Saint Simon, and La Rochefoucauld.

375 Ideology and Fiction in Eighteenth-Century Narrative Fall term. Credit four hours. M W F 1:25-2:40. J. Harari.

A study of the evolution of eighteenth-century novel from both a structural and an ideological perspective. Primary texts: Montesquieu, Prévost, Defoe, Marivaux, Diderot, Swift, Voltaire, Laclos, and Crébillon. Background reading will include selections from Goldmann, Hegel, Marx, and Sartre.

385 Gustave Flaubert Fall term. Credit four hours. M W F 2:30. N. Furman.

An analysis of the major works of Gustave Flaubert: *Madame Bovary*, *L'Education sentimentale*, *Salammbô*, etc. Special attention will also be given to the critical corpus devoted to Flaubert's narrative technique.

405 The Detective Novel Fall term. Credit four hours. Prerequisite: a reading knowledge of French. T 2:30-4:25. D. I. Grossvogel.

Who done it? How was it done? Why was it done? A structural and sociological analysis of detective fiction. The reading list will draw on continental and American models.

419-420 Special Topics in French Literature Throughout the year. Credit four hours a term. Prerequisite: consent of the instructor. Staff.

Guided independent study of specific topics.

429-430 Honors Work in French May be taken without credit or for four hours with consent of the adviser. Open to juniors and seniors.

See the director of the Honors Program, A. Seznec.

447-448 Medieval Literature 447 fall term only; 448 spring term only. Credit four hours a term. Prerequisite: French 201-202 or consent of the instructor. First term not prerequisite to the second. Fall term: M W F 9:05. Spring term: F 2:30-4:25 and an additional hour to be arranged for students entering in the spring term without previous training in Old French. A. Colby.

The first term deals with the epic and the theater; the second, with the romance and the lyric. Facility in reading Old French and appreciation of these four major genres are the primary goals of this course.

462 Molière Spring term. Credit four hours. M 1:25-3:20. A. Seznec.

A study of Molière's theater with some emphasis on the social and political aspects of his works.

470 Ethics and the Text Spring term. Credit four hours. T Th 10:10-11:25. P. Coleman.

Beginning with the *Lettre à d'Alembert* and other texts of Rousseau in which ethical and esthetic questions are combined, the course will deal with the types of discourse produced by such a combination, with a view to understanding the way ethical categories, particularly the idea of the subject as agent, are thematized in literary works. The emphasis will be on Rousseau, but readings in Diderot and other writers will provide material for comparison and instructive contrast.

494 Barthes, Balzac, S/Z and Related Problems Spring term. Credit four hours. Prerequisite: French 201 or equivalent and a reading knowledge of French. T Th 8:40-9:55. D. I. Grossvogel.

A group reading of a critical text and the original text upon which it is based. The course will be a workshop for the close analysis of one of the analytic approaches of new French criticism.

639-640 Special Topics in French Literature Throughout the year. Credit four hours a term. To be taken by all new graduate students. Hours to be arranged. Staff.

648 Medieval Seminar: Le Roman de la rose Spring term. Credit four hours. Th 1:25-3:20. A. Colby.

669 Types of Textual Criticism Fall term. Credit four hours. F10-12. P. Lewis.

An examination of the principal schools of criticism in contemporary France, ranging from historical

scholarship to neo-Marxist theories of production. The typology will be organized in terms of fundamental interpretative alternatives; criticism as tautology, as reduction, as invention. In addition to theoretical readings, the course will revolve around a crucial practical component: comparison and contrast of diverse contemporary interpretations of Racine's theater (by Picard, Mauron, Barthes, Goldmann, Starobinski, etc.); in this context, a number of plays will be analyzed intensively.

680 Ethnology and Philosophy in the Enlightenment Spring term. Credit four hours. Prerequisite: reading knowledge of French. Classes conducted in English. T 3:35. J. Harari.

The aim of this course is to trace, within the predominantly philosophical discourse of the enlightenment, the existence of another intrinsic discourse dealing with the genesis, the evolution, and the movement of human societies. Selections from Montesquieu, Diderot, Buffon, Voltaire, Rousseau, Lafitau, Demeunier, etc., in addition to more recent ethnological material (Lévi-Strauss, Radcliffe-Brown, etc.).

684 Foundations of Modern Criticism: The Nineteenth-Century Tradition Spring term. Credit four hours. W 1:25-3:20. N. Furman.

The development of criticism and its relationship to contemporary modes of interpretation. Writers studied will be La Harpe, Sainte-Beuve, Taine, Renan, Brunetière, etc.

Seminar on Narrative Typology (Society for the Humanities 419)

Seminar on Medieval Narrative (Society for the Humanities 420)

Baudelaire (Comparative Literature 681)

The Novella in World Literature (Comparative Literature 414)

Fictions of Self and the Languages of History (Romance Studies 391)

German

E. Augsberger, D. H. Bansberg, A. J. Berger, V. T. Bjarnar, E. A. Blackall, D. Connor, H. Deinert, I. M. Ezergailis, S. L. Gilman, A. B. Groos, Jr., R. L. Jones, I. Kovary, H. L. Kufner, C. Reschke, G. Valk, F. C. van Coetsem.

German Major

Students majoring in German are encouraged to design their program in a manner which will allow for diversity in their course of study. It should enable them to become acquainted with an adequate selection of major works, authors, and movements of German literature and to develop their skill in literary analysis. Students majoring in German will normally proceed through German 201, 202, 203, 204. However, if their previous training qualifies them for immediate enrollment in 300- and 400-level courses,

every effort will be made to permit them to do so. For details, students may consult the major advisers, D. H. Bansberg in the Department of German Literature, or R. L. Jones in the Department of Modern Languages and Linguistics. Students majoring in German are expected to complete successfully a minimum of six 300- and 400-level courses in addition to German 303-304 (of the 300-level courses listed below, those bracketed will be offered the following year). These courses should be a representative selection of subjects in German literature and/or Germanic linguistics. The attention of students majoring in German is called to the courses offered by the Department of Comparative Literature, many of which complement the course offerings in German.

Students majoring in German are expected to become competent in the German language. This competence is normally demonstrated by the successful completion of German 304. Placement of German majors who have done no work in German at Cornell will be determined by the level of preparation they have obtained elsewhere. For information please consult the major advisers, D. H. Bansberg or R. L. Jones. All German majors, particularly those who have had no German prior to coming to Cornell, are encouraged to spend at least part of their junior year abroad. Students have the opportunity to enroll, for credit, in a Cornell-sponsored Summer Language Program in Germany. Information is available upon request at the departmental offices.

The Honors Program

The Honors Program in German is open to superior students who wish to work independently in an area of their own choice. Students are free to select any member of the Field of Germanic Studies to assist them in designing their Honors Program, to supervise their work, and to help them select a suitable topic for an honors essay. The independent study courses 451, 452 may form part of the program.

Distribution Requirement

The distribution requirement in the humanities is satisfied in German by any two German literature courses at the 200 level and above.

101-102 Basic Course 101 fall term only; 102 spring term only. Credit six hours a term. Students who have previously studied German should consult p. 20 before registering for this course. Drill, M-F 8, 9:05, 11:15, 12:20; lecture, M W 10:10. H. L. Kufner and staff.

This is a semi-intensive course which gives a thorough grounding in the language—listening, speaking, reading, and writing. It is conducted in small groups with opportunity for contact with native speakers of the language and for laboratory work. (See also German 131-132 and 105-106.)

103-104 Freshman Seminar in German Literature in English Translation 103 fall term only. M W F 12:20, T Th 8:30-10, T Th 3:35. 104 Spring term only. M W F 12:20, T Th 8:30-10, T Th 3:35. Credit

three hours a term. D. Connor, I. Ezergailis, and staff.

Topic for 103: the individual under pressure. Readings and discussion of English translations of major German dramas dealing with the problems faced by man threatened by the constraints imposed by the traditional society around him. The texts studied will include works by Georg Büchner, Friedrich Dürrenmatt, the expressionists, Bertolt Brecht, Max Frisch, and others.

Topic for 104: the problematic self. Novels in English translation by twentieth-century German authors ranging from Kafka to Hesse and Günter Grass, dealing with attempts to understand the self and the relationship to others.

105-106 Elementary German for Literary Studies

105 fall term only; 106 spring term only. Credit four hours a term. Students who have previously studied German should consult p. 20 before registering for this course. M W F 12:20. Staff.

The course is intended for students with no previous knowledge of German whose primary interest lies in developing a reading ability of German literary texts. The emphasis will be on reading and discussing texts of increasing difficulty. As the course progresses the students will be encouraged to develop an oral comprehension of the language as well. For further information contact the Department of German Literature.

131-132 Elementary Reading Course I 131 fall term only; 132 spring term only. Credit three hours a term. Students who have previously studied German should consult p. 20 before registering for this course. M W F 8, 9:05, 10:10, 11:15, 12:20, 1:25, 2:30. R. L. Jones and staff.

The aim of this course is primarily to develop skill in reading, although some attention will be devoted to the spoken languages, especially to listening comprehension. (See also German 101-102 and 105-106.)

133-134 Elementary Reading Course II 133 fall term only; 134 spring term only. Credit three hours a term. Prerequisite: German 132 or the equivalent. M W F 10:10, 2:30 or T Th S 10:10. I. Kovary.

201 Problems in the Analysis of Drama Either term. Credit three or four hours a term; for details, consult the instructor. Prerequisite: Qualification in German. (For definition of Qualification, see p. 14.) Fall term: M W F 12:20, T Th 12:20, T Th 3:35. Spring term: T Th 3:35. D. H. Bansberg, S. L. Gilman, and staff.

Self-confrontation and social conflict in the plays of six major Austrian, Swiss, and German dramatists: Dürrenmatt, Brecht, Büchner, Hofmannsthal, Goethe, and Schiller. The texts will be used to help students to develop an analytic approach to drama and to enable them to improve their reading knowledge of German.

202 Problems in the Analysis of Prose Either term. Credit three or four hours a term; for details,

consult the instructor. Prerequisite: Qualification in German. (For definition of Qualification, see p. 14.) Fall term: T Th 3:35. Spring term: M W F 12:20, T Th 12:20, T Th 3:35. D. H. Bansberg, S. L. Gilman, and staff.

The complexities of inner and outer reality as expressed in selected prose works of Kafka, Mann, Kleist, Grass, Brecht, Tieck, and Hofmannsthal. These texts will be used to develop a critical method for the reading of modern narrative literature.

203 Intermediate Composition and Conversation

Fall term. Credit three hours. Prerequisite: Qualification in German. (For definition of Qualification, see p. 14.) M W F 9:05, 10:10, 11:15, 12:20. E. Augsberger and G. Valk.

Guided conversation and oral and written composition, with special attention to accurate and idiomatic expression in German.

204 Intermediate Composition and Conversation

Spring term. Credit three hours. Prerequisite: German 203 or consent of the instructor. Spring term: M W F 9:05 or 10:10. E. Augsberger and G. Valk.

Continuation of the work of German 203. Emphasis is placed on increasing the student's active vocabulary and command of grammatical patterns.

211 Intensive Workshop in Germanic Studies for Freshmen

Fall term. Credit six hours. Hours to be arranged. D. H. Bansberg and D. Connor.

The workshop is intended for entering freshmen who come to Cornell with extensive training in the German language (a score of 680 or higher on the Placement Examination). The course will provide an intensive introduction to the study of German literature through the discussion of exemplary prose works, dramas, and poems from the eighteenth century to the present. In addition, the course will emphasize the various methods of literary interpretation and will introduce the student to German history and civilization through complementary outside reading. The course is not intended as a survey but rather as a rigorous seminar designed to familiarize the student with literary forms and the tools of critical analysis. The course will meet three times a week and will be conducted in German. While ambitious, as reflected in the high number of credit hours, the workshop should provide the challenge and satisfaction of an early introduction to a demanding discipline.

303-304 Advanced Composition and Conversation

303 fall term only; 304 spring term only. Credit four hours a term. Prerequisite: German 204 or consent of the instructor. M W F 1:25. E. Augsberger.

Emphasis is placed on increasing the student's oral and written command of German. Detailed study of present-day syntax and different levels of style.

321 Literature of the Age of Migration (also Comparative Literature 316) Fall term. Credit four hours. T Th 3:35. A. Berger.

In English translation. Readings in the earliest history and literature of the Germanic tribes. The stories and histories of Attila, Ermanarich, Sigurtr, Hildebrand, and other heroes of the migration period. Readings in Paulus Diaconus, *The Thidrekssaga*, *Hildebrandslied*, *The Elder Edda*, Gregory of Tours, *Nibelungenlied*, and others.

322 Old Icelandic Family Sagas in English Translation Spring term. Credit four hours. T Th 12:20. A. Berger.

[351 Poetry of the Eighteenth Century] Fall term. Credit four hours. Prerequisite: German 201, 202, or consent of the instructor. D. H. Bansberg. Offered in alternate years. Not offered in 1974-75.]

354 Lessing, Schiller, Kleist Fall term. Credit four hours. Prerequisite: German 201, 202, or consent of the instructor. T Th 3:35. D. H. Bansberg.

Discussion of selected plays and their social and intellectual background.

[355 Introduction to Goethe] Fall term. Credit four hours. Prerequisite: German 201, 202, or consent of the instructor. E. A. Blackall. Offered in alternate years. Not offered in 1974-75.]

[356 Goethe's *Faust*] Spring term. Credit four hours. Prerequisite: German 201, 202, or consent of the instructor. E. A. Blackall. Offered in alternate years. Not offered in 1974-75.]

357 Romanticism Spring term. Credit four hours. Prerequisite: German 201, 202, or consent of the instructor. M W F 3:35. E. A. Blackall.

The course will concentrate on the lyrical poetry and the novellas of the major German romantics who were writing between 1790 and 1830. There will be close study of the texts and ample time for discussion.

[359 Nineteenth-Century Realism: Drama and Prose] Fall term. Credit four hours. Prerequisite: German 201, 202, or consent of the instructor. S. L. Gilman. Offered in alternate years. Not offered in 1974-75.]

[360 Lyrical Poetry from Heine to Hofmannsthal] Spring term. Credit four hours. Prerequisite: German 201, 202, or consent of the instructor. I. Ezergailis. Offered in alternate years. Not offered in 1974-75.]

361 Modern German Literature I: Twentieth-Century German Prose Fall term. Credit four hours. Prerequisite: German 201, 202, or consent of the instructor. M W F 9:05. I. Ezergailis.

The course will deal mainly with shorter prose works of such authors as Hesse, Hofmannsthal, Kafka, Thomas Mann, Dürrenmatt, Frisch, and Grass. An intensive analysis of modern prose works with emphasis on their reflection of contemporary attitudes and problems.

[362 Modern German Literature II: the Drama] Spring term. Credit four hours. Prerequisite: German 201, 202, or consent of the instructor. D. Connor. Offered in alternate years. Not offered in 1974-75.]

363 Modern German Literature III: Lyrical Poetry Spring term. Credit four hours. Prerequisite: German 201, 202, or consent of the instructor. M W F 9:05. D. H. Bansberg.

A study of the major achievements of poets such as George, Hofmannsthal, Rilke, Benn, Trakl, Celan, and Krolow. Some attention will be given to political poetry written in Germany between 1933 and 1945. The course will be conducted in German.

[402 History of the German Language] Spring term. Credit four hours. Offered in alternate years. Prerequisite: German 204 and Linguistics 101, or consent of the instructor. M W F 12:20. Not offered in 1974-75.]

405-406 Introduction to Medieval German Literature 405 fall term only; 406 spring term only. Credit four hours. M W F 11:15. A. B. Groos.

Intended for students with no previous knowledge of Middle High German. The course will provide a survey of the most outstanding works of the court epic, the heroic epic, and Minnesang. Emphasis will be placed on a thorough understanding of the Middle High German language.

407 German for Teachers Fall term. Credit four hours. M W F 11:15. H. L. Kufner.

[408 Linguistic Structure of German] Spring term. Credit four hours. Prerequisites: German 204 and Linguistics 101, or consent of the instructor. M W F 11:15. H. L. Kufner. Not offered in 1974-75.]

[411 Modern Dramatists: Bertolt Brecht] Fall term. Credit four hours. Prerequisite: German 201, 202, or consent of the instructor. D. Connor. Not offered in 1974-75.]

[413 Topics in German Literature I: the Modern German Novel (In English Translation)] Fall term. Credit four hours. H. Deinert. Not offered in 1974-75.]

414 Topics in German Literature II: the Weimar Republic Spring term. Credit four hours. Lecture, T 1:25; discussion, Th 1:25. Readings and lectures in English. S. L. Gilman.

A survey of the intellectual developments in Germany from 1918 to 1933. Emphasis will be placed on the literary manifestations of the period, but these will be examined in the general political and aesthetic context of the times. Among the readings which will reflect these interests are: Theater: Brecht's, *Three Penny Opera*; Novel: Döblin's, *Berlin Alexanderplatz*; Opera: Berg's *Wozzeck*; Politics: Hitler's *Mein Kampf*; Cinema: Lang's *M*; Art: the aesthetics of Klee and Kandinsky.

417-418 The Great Moments of German Literature 417 fall term only; 418 spring term only. Credit four hours a term. Prerequisite: reading knowledge of German. M W F 12:20. E. A. Blackall.

Recommended for graduate students and undergraduates, whether majoring in German or not, who wish to acquire an overall view of the whole range of German literature from the earliest texts to the beginning of the present century. The course will consist of lectures and discussion classes. The lectures will aim at a characterization of the temper of a period or of the essential nature of a certain writer. The discussion periods will concentrate on individual works illustrative of the topics of the lectures.

[421 Germanic Mythology] Fall term. Credit four hours. A. Berger. Not offered in 1974-75.]

451-452 Independent Study 451 fall term only; 452 spring term only. Variable credit: one to four hours a term. Staff.

Extensive reading of texts in addition to regular course work, under the direction of a member of the Department.

Don Juan and Faust (Comparative Literature 416)

The Novella in World Literature (Comparative Literature 414)

For complete descriptions of courses numbered 600 or above, consult the appropriate instructor.

601 Introduction to Germanic Linguistics Fall term. Credit four hours. Offered in alternate years. Prerequisite: Linguistics 101. W 1:25. H. L. Kufner.

602 Gothic Fall term. Credit four hours. Offered in alternate years. Prerequisite: Linguistics 101. W 1:25.

[603-604 Old Saxon, Old High German, Old Low Franconian, Old Frisian] 603 fall term only; 604 spring term only. Credit four hours a term. Offered in alternate years. Prerequisite: Linguistics 102. M W F 3:35. Not offered in 1974-75.]

609-610 Old Norse 609 fall term only; 610 spring term only. Credit four hours a term. Hours to be arranged. V. Bjarnar.

[611 Heroic Poetry and Heroic Legend in Icelandic] Fall term. Credit four hours. Prerequisite: German 610 or consent of the instructor. A. Berger. Not offered in 1974-75.]

612 Icelandic Family Sagas Fall term. Credit four hours. Prerequisite: German 610 or consent of the instructor. W 3:35. A. Berger.

613 Old Icelandic Mythological Texts Spring term. Credit four hours. Prerequisite: German 610 or consent of the instructor. W 3:35. A. Berger.

623 Middle High German Epic Fall term. Credit four hours. Prerequisite: German 405-406, or consent of the instructor. T 1:25. A. B. Groos.

[624 Medieval Lyrical Poetry] Spring term. Prerequisite: German 405-406, or consent of the instructor. A. B. Groos. Not offered in 1974-75.]

[625 Sixteenth-Century German Literature] Fall term. Credit four hours. S. L. Gilman. Not offered in 1974-75.]

[627 Aspects of Baroque Literature] Fall term. Credit four hours. H. Deinert. Not offered in 1974-75.]

[630 Lessing] Fall term. Credit four hours. D. Connor. Not offered in 1974-75.]

[631 Goethe's Novels] Fall term. Credit four hours. E. A. Blackall. Not offered in 1974-75.]

[632 Goethe's Faust] Spring term. Credit four hours. E. A. Blackall. Not offered in 1974-75.]

[633 Romanticism] Spring term. Credit four hours. E. A. Blackall. Not offered in 1974-75.]

[635 Heine and Der Deutsche Vormärz] Spring term. Credit four hours. S. L. Gilman. Not offered in 1974-75.]

[636 Nineteenth-Century Drama] Spring term. Credit four hours. H. Deinert. Not offered in 1974-75.]

638 Thomas Mann Spring term. Credit four hours. M 1:25. I. Ezerailis.

639 Contemporary Lyrical Poetry Fall term. Credit four hours. W 1:25. D. H. Bansberg.

[640 History and Methods of Modern German Literary Criticism] Spring term. Credit four hours. S. L. Gilman. Not offered in 1974-75.]

[641 The Postwar German Novel] Fall term. Credit four hours. I. Ezerailis. Not offered in 1974-75.]

642 Hofmannsthal and Schnitzler Spring term. Credit four hours. F 1:25. E. A. Blackall.

665 Aesthetic Theory and Text in the Eighteenth Century (also Comparative Literature 665) Fall term. Credit four hours. M 1:25. S. L. Gilman.

A close reading of a series of aesthetic theories (Burke, Lessing, Diderot, Mendelssohn, Schiller, Jean Paul) paralleled by readings in prose works of the period dealing with aesthetic questions (Wieland, Diderot, Goethe).

699 Colloquium on the Teaching of Literature Either term. Credit one hour a term. Open to teaching assistants in the Department of German Literature. Composed of all faculty members and assistants teaching undergraduate courses. Meetings every other week to be arranged.

710 Seminars in Germanic Linguistics Either term, subject to the needs of students and to the limitations of staff time. Credit four hours. Hours to be arranged. Staff.

720 Seminar in Comparative Germanic Linguistics Either term, subject to the needs of students and to the limitations of staff time. Credit four hours. Hours to be arranged. Staff.

[721-722 Computer Methods in Germanic Studies

721 fall term only; 722 spring term only. Subject to the needs of students and to the limitations of staff time. Credit four hours a term. Hours to be arranged. R. L. Jones. Not offered in 1974-75.]

730 Seminar in German Linguistics Either term, subject to the needs of students and to the limitations of staff time. Credit four hours. Hours to be arranged. R. L. Jones.

Selected topics including the history, structure, and dialects of modern German.

740 Seminar in Dutch Linguistics Either term, subject to the needs of students and to the limitations of staff time. Credit four hours. Hours to be arranged.

Selected topics including the history, structure, and dialects of modern Dutch.

753-754 Seminar in German Literature 753 fall term only; 754 spring term only. Variable credit: one to four hours a term. Hours to be arranged. Staff.

Hindi-Urdu

C. E. Elliott, J. W. Gair, G. B. Kelley.

101-102 Hindi-Urdu Basic Course 101 fall term only; 102 spring term only. Credit six hours a term. Drill, M-F at 9:05; lecture, T Th 10:10.

201-202 Hindi Reading 201 fall term only; 202 spring term only. Credit three hours a term. Prerequisites: for 201, Qualification in Hindi; for 202, Hindi 201 or consent of the instructor. Hours to be arranged.

203-204 Composition and Conversation 203 fall term only; 204 spring term only. Credit three hours a term. Prerequisites: for 203, Qualification in Hindi; for 204, Hindi 203 or consent of the instructor. Hours to be arranged.

301-302 Readings in Hindi Literature Credit four hours a term. Prerequisite: Hindi 202. Hours to be arranged.

303-304 Advanced Composition and Conversation 303 fall term only; 304 spring term only. Credit four hours a term. Prerequisite: Hindi 204. Hours to be arranged.

305-306 Advanced Hindi Readings 305 fall term only; 306 spring term only. Credit four hours a term. Prerequisite: Hindi 202. Hours to be arranged.

Intended for those who wish to do readings in history, government, economics, etc., instead of literature.

401 History of Hindi Either term. Credit four hours. Prerequisite: Hindi 101-102, or equivalent, or Linguistics 102. Hours to be arranged.

For complete descriptions of courses numbered 500 and above, consult the graduate field representative.

700 Seminar in Hindi Linguistics Either term. Credit three hours. Prerequisite: consent of the instructor. Hours to be arranged. C. E. Elliott, J. W. Gair, or G. B. Kelley.

Indonesian

J. M. Echols, J. U. Wolff

101-102 Basic Course 101 fall term only; 102 spring term only. Credit six hours a term. Hours to be arranged.

201-202 Indonesian Reading 201 fall term only; 202 spring term only. Credit three hours a term. Prerequisites: for 201, Qualification in Indonesian; for 202, Indonesian 201 or consent of the instructor. Hours to be arranged.

203-204 Composition and Conversation 203 fall term only; 204 spring term only. Credit three hours a term. Prerequisites: for 203, Qualification in Indonesian; for 204, Indonesian 203 or consent of the instructor. Hours to be arranged.

[300 Linguistic Structure of Indonesian Either term. Credit four hours. Prerequisites: Indonesian 101-102, or the equivalent, and Linguistics 101. Hours to be arranged. J. U. Wolff. Not offered in 1974-75.]

301-302 Readings in Indonesian and Malay 301 fall term only; 302 spring term only. Credit four hours a term. Prerequisites: for 301, Indonesian 201-202 or the equivalent; for 302, Indonesian 301. Hours to be arranged.

[303-304 Advanced Indonesian Conversation and Composition 303 fall term only; 304 spring term only. Credit four hours a term. Prerequisite: Indonesian 204 or the equivalent. Hours to be arranged. Not offered in 1974-75.]

401-402 Advanced Readings in Indonesian and Malay Literature 401 fall term only; 402 spring term only. Credit four hours a term. Prerequisite: Indonesian 302 or consent of the instructor. Hours to be arranged.

Malayo-Polynesian Linguistics (Linguistics 655-656)

Italian

A. Grossvogel, R. A. Hall, Jr., G. Mazzotta

Italian Major

Students who wish to major in Italian should choose a faculty member to serve as major adviser; the general plan and the details of the student's course of studies will be worked out in consultation. Italian majors are encouraged to take courses in related subjects such as history, art history, music, philosophy, anthropology, Classics, linguistics, and other modern languages and literatures. While, theoretically, a Cornell major occupies only the junior and senior years, as a matter of practical fact it is wise for the student to seek faculty advice on the major as early as possible.

Students who elect to major in Italian should ordinarily have completed Italian Literature 201-202 and Italian Language 203-204 by the end of their sophomore year. Exemptions can be made on the basis of an examination. Students majoring in Italian are expected to become conversant with a fair portion of the masterworks of Italian literature, to acquaint themselves with the outlines of Italian literary history, and to develop some skill in literary analysis. To this end students will be expected to complete successfully twenty-four hours of Italian literature courses at the 300 level or higher, with papers to be written in Italian or English. One or more courses offered by the Department of Comparative Literature may be counted toward the required twenty-four hours if students obtain the prior approval of their major adviser.

Students majoring in Italian will also be expected to acquire competence in the handling of the language. That competence may be demonstrated by the successful completion of Italian 304 or by the passing of an oral and written examination to be arranged with the adviser.

Italian majors may study in Italy, generally during their junior year, under any one of those study-abroad plans, organized by American universities, which allow the transfer of grades and credit, such as the Syracuse Semester in Italy in Florence.

Graduate Program in Italy

The Department of Romance Studies has been affiliated in the past four years with the University of Bologna. Under normative conditions, a graduate student may expect to spend a spring term in Bologna to become familiar with the language and the culture of Italy. Whenever possible, the Program consists of three seminars, one offered by a Cornell professor, and the other two by Professor Luigi Heilmann (Linguistics as a Tool for Literary Criticism) and Professor Ezio Raimondi (Stylistics).

Distribution Requirement

The distribution requirement in the humanities is satisfied in Italian by Italian 201-202.

Courses dealing with literature are staffed and administered by the Department of Romance Studies, and inquiries in regard to them ought to be addressed to that Department, 278 Goldwin Smith Hall.

The courses dealing with language and linguistics are offered and administered by the Department of Modern Languages and Linguistics, Morrill Hall.

Language and Linguistics

101-102 Basic Course 101 fall term only; 102 spring term only. Credit six hours a term. Drill, M-F 8, 9:05, or 12:20, lecture, T Th 10:10.

131-132 Elementary Reading Course 131 fall term only; 132 spring term only. Credit three hours a term. M W F 2:30.

203-204 Composition and Conversation 203 fall term only; 204 spring term only. Credit three hours a term. Prerequisite: Qualification in Italian. M W F 9:05.

[300 Advanced Composition and Conversation According to demand. Credit two to four hours. Prerequisite: Italian 204. Hours to be arranged. Not offered in 1974-75.]

[402 History of the Italian Language Spring term. Credit four hours. Offered in alternate years. Prerequisites: Qualification in Italian, and Linguistics 101. M W F 9:05. R. A. Hall, Jr. Not offered in 1974-75.]

[403 Structure of Italian Spring term. Credit four hours. Offered in alternate years. Prerequisite: Qualification in Italian. M W F 9:05. R. A. Hall, Jr. Not offered in 1974-75.]

[432 Italian Dialectology Spring term. Credit four hours. Offered in alternate years. M W F 9:05. R. A. Hall, Jr. Not offered in 1974-75.]

For complete descriptions of courses numbered 700 and above, consult the graduate field representative.

700 Seminar in Italian Linguistics Offered according to demand. Credit four hours. R. A. Hall, Jr.

Literature

201-202 Introduction to Italian Literature

Throughout the year. Credit three hours a term. Prerequisite: Qualification in Italian (for definition of Qualification, see p. 14). Classes will be conducted in Italian. Hours to be arranged.

327-328 Dante: La Divina Commedia Throughout the year. Credit four hours a term. Prerequisite: consent of the instructor. In Italian. Fall term: T Th 2:30-3:35. Spring term: W 2:30-4:30. G. Mazzotta.

334 Dante in Translation (also Comparative Literature 344) Spring term. Credit four hours. Prerequisite: consent of the instructor. M W F 12:20. G. Mazzotta.

335 Boccaccio Fall term. Credit four hours. T 10:10-12:10. Prerequisite: consent of the instructor. G. Mazzotta.

The course will focus on the *Decameron*, *Genealogy of the Gentile Gods*, and the *Filocolo*.

[370 The Enlightenment in Italy Spring term. Credit four hours. Not offered in 1974-75.]

386 The Nineteenth-Century Historical Novel: Temporal and Spatial Metaphors (also Comparative Literature 373) Spring term. Credit four hours. T Th 10:10-11:25. A. V. Grossvogel.

Readings and analysis of *The Betrothed*, *The Charterhouse of Parma*, *The Castle of Fratta*, *The Leopard*. The course will focus on the subtle interplay of the dislocation of time and of space as a distancing device in the narratives of Manzoni, Stendhal, Nievo, and Lampedusa.

389 The Romantic Movement (also Comparative Literature 376) Fall term. Credit four hours. M W F 10:10. A. V. Grossvogel.

Messages and messengers across the Alps. The influence of politics, poetics, polemics to define the character of Italian romanticism. Readings from Vico, Alfieri, Foscolo, Leopardi, Manzoni, and also Di Breme, Visconti, Borsieri, Berchet, Mazzini, Pellico.

395 Gamblers, Engineers, and "Bricoleurs" in Contemporary Italian Fiction (also Comparative Literature 393) Fall term. Credit four hours. M W 1:25-2:40. A. V. Grossvogel.

An attempt to read in translation the narrative of Gadda, Landolfi, Calvino, Fruttero-Lucentini.

486 Prose Framing Poetry (also Comparative Literature 415) Spring term. Credit four hours. T 2:30-4:30. A. V. Grossvogel.

Blake, Foscolo, Leopardi, Nerval. Examination of the different functions of the explicit or implicit use of prose to define, oppose, distance, complete the lyric moment. Reading knowledge of Italian or French required.

[488 Giacomo Leopardi Spring term. Credit four hours. Not offered in 1974-75.]

[491 Luigi Pirandello Fall term. Credit four hours. Not offered in 1974-75.]

[498 Gabriele D'Annunzio Spring term. Credit four hours. Not offered in 1974-75.]

[686 Alessandro Manzoni Spring term. Credit four hours. Not offered in 1974-75.]

[694 Trends in Contemporary Criticism Spring term. Credit four hours. Not offered in 1974-75.]

Fictions of Self and the Languages of History (Romance Studies 391)

Japanese

E. H. Jorden, J. McCoy

101-102 Basic Course 101 fall term only; 102 spring term only. Credit six hours a term. M-F 9:05 or 12:20, and M W F 10:10.

201-202 Intermediate Japanese I 201 fall term only; 202 spring term only. Credit four hours a term. Prerequisite: Japanese 102, M-F 10:10.

203-204 Japanese Conversation 203 fall term only; 204 spring term only. Credit two hours a term. Prerequisite: Japanese 102. Hours to be arranged.

301-302 Intermediate Japanese II 301 fall term only; 302 spring term only. Credit four hours a term. Prerequisite: Japanese 202 or consent of the instructor. Hours to be arranged. E. H. Jorden.

Reading of selected modern texts with emphasis on expository style.

303-304 Japanese Conversation—Intermediate 303 fall term only; 304 spring term only. Credit two hours a term. Prerequisite: Japanese 204 or consent of the instructor. Hours to be arranged. E. H. Jorden.

305-306 Introduction to Literary Japanese 305 fall term only; 306 spring term only. Credit four hours a term. Prerequisite: Japanese 202 or consent of the instructor. Hours to be arranged.

401-402 Advanced Japanese 401 fall term only; 402 spring term only. Credit four hours a term. Prerequisite: Japanese 302 or consent of the instructor. Hours to be arranged.

404 Linguistic Structure of Japanese Spring term. Credit four hours. Prerequisites: Japanese 102 or consent of the instructor, and Linguistics 101. Hours to be arranged. E. H. Jorden and J. McCoy.

405-406 Intermediate Literary Japanese 405 fall term only; 406 spring term only. Credit four hours a term. Prerequisite: Japanese 306 or consent of the instructor. Hours to be arranged.

421-422 Directed Readings 421 fall term only; 422 spring term only. Credit to be arranged. Prerequisite: Japanese 402 or consent of the instructor. Hours to be arranged.

Topics will be selected on the basis of student needs.

[431-432 Introduction to Japanese Reading for Students of Chinese 431 fall term only; 432 spring term only. Credit three hours a term. Prerequisite: consent of the instructor. Hours to be arranged. E. H. Jorden and J. McCoy. Not offered in 1974-75.]

Falcon

161-162 Intensive Course 161 fall term only,

parallel to first eighteen credit hours of instruction in regular program; 162 spring term only, parallel to second eighteen credit hours of instruction in regular program. Six hours per day M-F. E. H. Jorden and staff.

Javanese

J. M. Echols, J. U. Wolff.

131-132 Elementary Course 131 fall term only; 132 spring term only. Credit three hours a term. Prerequisite: Qualification in Indonesian. Hours to be arranged.

133-134 Intermediate Course 133 fall term only; 134 spring term only. Credit three hours a term. Prerequisite: Javanese 132 or the equivalent. Hours to be arranged.

Linguistics

L. H. Babby, N. C. Bodman, J. S. Bowers, E. W. Browne, S. P. Durham, J. M. Echols, C. E. Elliott, J. W. Gair, J. E. Grimes, R. A. Hall, Jr., C. F. Hockett, F. E. Huffman, R. B. Jones, Jr., R. L. Jones, E. H. Jorden, G. B. Kelley, L. D. King, H. L. Kufner, R. L. Leed, G. M. Messing, J. McCoy, J. S. Noblitt, D. F. Solá, M. A. Suñer, F. C. van Coetsem, J. F. Vigorita, A. R. Walton, L. R. Waugh, J. U. Wolff

Linguistic Major

The major in linguistics has three prerequisites: (1) Linguistics 101-102; (2) Qualification in two languages, one from the familiar European group (Latin, Greek, French, Italian, Portuguese, Spanish, German, Russian) and one from the other languages offered at Cornell, with six hours beyond Qualification in one or the other of these two; (3) a two-semester sequence in a related discipline (e.g., the literature of the language in which six hours beyond Qualification was offered as a prerequisite, anthropology, computer science, mathematics, philosophy, psychology, or sociology). Completion of the major requires: (1) Linguistics 303, 304, 311; (2) a course in historical linguistics, either a course in historical method such as Linguistics 404 or the history of a specific language or family; (3) a minimum of eight additional hours in linguistics chosen in consultation with the adviser. Prospective majors should see J. W. Gair.

Distribution Requirement

Linguistics 101-102, or the combination Linguistics 101 and any other course for which Linguistics 101 is a prerequisite, satisfies the distribution requirement in the social sciences.

101-102 Introduction to the Scientific Study of Language 101 fall term only; 102 spring term only. Credit three hours a term. First term is a prerequisite

to the second. Lecture M W F 9:05, 10:10, or 11:15. J. W. Gair and staff.

An introductory survey course designed to acquaint the student with the nature of human language and with its systematic study.

201-202 Phonetics 201 fall term only; 202 spring term only. Credit three hours a term. M Th 1:25-2:40. J. E. Grimes and R. L. Leed.

Practical, experimental and theoretical aspects of articulatory and acoustic phonetics.

203 Multilingual Societies and Cultural Policy Spring term. Credit four hours. T Th 1:25-3. D. F. Solá.

An interdisciplinary course on the linguistic, cultural, and political components of cultural policy in multilingual and multicultural societies.

303 Phonology Fall term. Credit four hours. Prerequisite: Linguistics 101. T Th 9:05-10:20. L. R. Waugh.

A general survey of neo-Bloomfieldian, Jakobsonian, and generative phonology.

304 Morphology Spring term. Credit four hours. Prerequisite: Linguistics 303 or consent of the instructor. T Th 9:05-10:20. L. R. Waugh.

A general survey of neo-Bloomfieldian, Jakobsonian, and generative morphology.

306 Syntax Fall term. Credit four hours. Prerequisite: consent of the instructor. T Th 11:15-1:10. D. F. Solá.

308 Dialectology Spring term. Credit four hours. Offered in alternate years. W 1:25-3:20. R. A. Hall, Jr.

311-312 The Structure of English 311 fall term only; 312 spring term only. Credit four hours a term. Prerequisite: Linguistics 101-102 or consent of the instructor. M W F 11:15. C. E. Elliott.

The first term is devoted to a study of the structure of English from the point of view of modern transformational analysis. Emphasis is on enabling students to develop the skills of analysis, though current works on English grammar are also examined. The second term is devoted to approaches to the semantic interpretation of English sentences.

325 Teaching English as a Foreign Language Spring term. Credit three hours. Prerequisite: Linguistics 101, 102, 311 or equivalent or consent of the instructor. T Th 2:30-4:00. C. E. Elliott.

341 India as a Linguistic Area Fall term. Credit four hours. Offered in alternate years. Prerequisite: Linguistics 101. Hours to be arranged. J. W. Gair or G. B. Kelley.

[400 Analytic Techniques] Fall term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. C. F. Hockett. Not offered in 1974-75.]

401 Linguistic Structures Fall term. Credit four hours. Prerequisite: Linguistics 304. T Th 2:30-3:45. J. W. Gair.

[402 Contrastive Analysis] Spring term. Credit four hours. Prerequisite: consent of the instructor. Not offered in 1974-75.]

403 Applied Linguistics and Second-Language Acquisition Spring term. Credit four hours. Prerequisite: structure of a language at 400 level. T Th 3:35. J. S. Noblitt.

404 Comparative Methodology Spring term. Credit four hours. Prerequisite: Linguistics 304. Th 11:15-1:00. R. B. Jones, Jr.

405-406 Sociolinguistics 405 fall term only; 406 spring term only. Credit four hours a term. Offered in alternate years. Prerequisite: consent of the instructor. G. B. Kelley.

411-412 Transformational Grammar: Syntax and Semantics 411 fall term only; 412 spring term only. Credit four hours a term. First term is prerequisite to the second. T Th 10:10-12:05. J. S. Bowers.

Fall: introduction to the theory of syntax within a generative-transformational framework. Spring: advanced course on syntax and the relation of syntax to semantics.

413-414 Generative Phonology 413 fall term only; 414 spring term only. Credit four hours a term. First term is prerequisite to the second. Hours to be arranged. J. S. Bowers.

Fall: introduction to phonology within a generative-transformational framework. Spring: advanced course in generative phonology.

[440 Dravidian Structures] Either term according to demand. Credit four hours. Prerequisite: Linguistics 102. G. B. Kelley. Not offered in 1974-75.]

442 Indo-Aryan Structures Either term according to demand. Credit four hours. Prerequisite: Linguistics 102. Hours to be arranged. J. W. Gair.

493 Honors Thesis Research Fall term. Credit four hours. Staff.

May be taken before or after Linguistics 494 or either may be taken independently.

494 Honors Thesis Research Spring term. Credit four hours. Staff.

May be taken as a continuation of or prior to Linguistics 493.

For complete descriptions of courses numbered 600 or above see the *Announcement of the Graduate School: Course Descriptions*. If the course is not in-

cluded there, consult the graduate field representative.

600 Field Methods Either term. Credit four hours. M W F 9:05. F. E. Huffman.

[601 Literature, Language, and Culture] Fall term. Credit four hours. Given in alternate years. W 1:25-3:20. R. A. Hall, Jr. Not offered in 1974-75.]

602 Pidgin and Creole Languages Spring term. Credit four hours. W 1:25-3:20. R. A. Hall, Jr.

603 History of Linguistics Fall term. Credit four hours. Given in alternate years. W 1:25-3:20. G. B. Kelley.

605-606 Linguistic Data Processing 605 fall term only. [606 spring term only. Not offered spring 1975.] Credit two hours a term. Prerequisites: Linguistics 101-102 and consent of the instructor. T Th 1:25; laboratory hours to be arranged. J. E. Grimes.

607 Schools of Linguistics Spring term. Credit four hours. Prerequisites: Linguistics 101-102 and consent of the instructor. T 11:15-1:00. J. E. Grimes.

Reading and discussion of various modern schools of linguistic thought.

608 Discourse Analysis Spring term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. J. E. Grimes.

610 Topics in Transformational Grammar Either term. Credit three hours. Prerequisite: consent of the instructor. W 3-5. J. S. Bowers and C. E. Elliott.

623-624 Old Irish 623 fall term only; 624 spring term only. Credit four hours a term. Offered in alternate years. Hours to be arranged. J. F. Vigorita.

A knowledge of Latin is recommended, but not required. Either Old Irish or Middle Welsh will be offered, according to demand.

625-626 Middle Welsh 625 fall term only; 626 spring term only. Credit four hours a term. Offered in alternate years. Hours to be arranged. J. F. Vigorita.

Either Old Irish or Middle Welsh will be offered according to demand.

627 Advanced Old Irish Either term. Credit two to four hours. May be repeated for credit. Prerequisite: Linguistics 624 or consent of the instructor. Hours to be arranged. J. F. Vigorita.

628 Comparative Celtic Grammar Spring term. Credit four hours. Prerequisite: one Celtic language or consent of the instructor. Hours to be arranged. J. F. Vigorita.

[629 Advanced Middle Welsh] Either term. Credit two to four hours. May be repeated for credit. Prerequisite: Linguistics 626. Hours to be arranged. J. F. Vigorita. Not offered in 1974-75.]

631-632 Comparative Indo-European Linguistics 631 fall term only; 632 spring term only. Credit four hours a term. Prerequisite: consent of the instructor. Hours to be arranged. G. M. Messing or J. F. Vigorita.

640 Elementary Pali Either term according to demand. Credit three hours. Hours to be arranged. J. W. Gair. Not offered in 1974-75.]

641-642 Elementary Sanskrit 641 fall term only; 642 spring term only. Credit three hours a term. T Th 10:10. G. M. Messing or J. F. Vigorita.

644 Comparative Indo-Aryan Spring term. Credit four hours. Prerequisites: Linguistics 101 and a basic course in Indo-Aryan language, or consent of the instructor. Hours to be arranged. J. W. Gair.

[646 Comparative Dravidian Spring term. Credit four hours. Prerequisites: Linguistics 101 and a basic course in a Dravidian language, or consent of the instructor. Hours to be arranged. G. B. Kelley. Not offered in 1974-75.]

[651-652 Old Javanese 651 fall term only; 652 spring term only. Credit four hours a term. Hours to be arranged. J. M. Echols. Not offered in 1974-75.]

653-654 Seminar in Southeast Asian Linguistics 653 fall term only; 654 spring term only. Credit four hours a term. Prerequisites: Linguistics 303 and consent of the instructor. Hours to be arranged. R. B. Jones, Jr.

[655-656 Malayo-Polynesian Linguistics 655 fall term only; 656 spring term only. Credit four hours a term. Prerequisites: Linguistics 101-102 and consent of the instructor. Hours to be arranged. J. U. Wolff. Not offered in 1974-75.]

657 Seminar in Mon-Khmer Linguistics Fall term only. Credit four hours. Prerequisites: Linguistics 101-102 and consent of the instructor. Hours to be arranged. F. E. Huffman.

Descriptive and comparative studies of Mon-Khmer languages.

662 Sino-Tibetan Linguistics Spring term on student demand. Credit four hours. Prerequisites: Linguistics 101-102 or Chinese 401-402 and consent of the instructor. Th 2:30-4:25. N. C. Bodman.

671-672 Comparative Slavic Linguistics 671 fall term only; 672 spring term only. Credit four hours a term. Offered in alternate years. Hours to be arranged. R. L. Leed.

700 Seminar Either term. Credit to be arranged. Prerequisite: consent of the instructor. Hours to be arranged. Staff.

701-702 Directed Research

751 Thai Dialectology Fall term. Credit four hours. Prerequisites: Linguistics 303 and consent of the instructor. W 2:30-4:25. R. B. Jones, Jr.

752 Comparative Thai Spring term. Credit four hours. Prerequisites: Linguistics 404 or equivalent and consent of the instructor. W 2:30-4:25. R. B. Jones, Jr.

753 Tibeto-Burman Linguistics Fall term. Credit four hours. Prerequisites: Linguistics 404 or equivalent and consent of the instructor. T 2:30-4:25. R. B. Jones, Jr.

Related linguistics courses offered in other departments are: Anthropology 302; Classics 425; English 601, 610; Philosophy 232, 437, 632, 633; and Psychology 215, 313, 416.

Portuguese

L. D. King

101-102 Basic Course 101 fall term only; 102 spring term only. Credit six hours a term. M-F 2:30, and an additional two hours to be arranged.

131-132 Elementary Course 131 fall term only; 132 spring term only. Credit three hours a term. Prerequisites: Qualification in Spanish and consent of the instructor. M W F 10:10.

A basic course designed principally for students majoring in Spanish or interested especially in Portugal or Brazil. Phonology, grammar, listening comprehension, and reading.

203-204 Composition and Conversation 203 fall term only; 204 spring term only. Credit three hours a term. Prerequisites: for 203, Qualification in Portuguese; for 204, Portuguese 203 or consent of the instructor. M W F 11:15.

303-304 Advanced Composition and Conversation 303 fall term only; 304 spring term only. Credit four hours a term. Prerequisite: Portuguese 204. Hours to be arranged.

305-306 Advanced Readings 305 fall term only; 306 spring term only. Credit four hours a term. Prerequisite: Portuguese 304. Hours to be arranged.

Designed for students needing further practice in reading Portuguese that is not literary.

Quechua

D. F. Solá

131-132 Elementary Course 131 fall term only; 132 spring term only. Credit three hours a term. Prerequisite: Qualification in Spanish. M W 1:25 and required language laboratory hours.

A beginning conversation course in the Cuzco dialect of Quechua.

133-134 Intermediate Course 133 fall term only; 134 spring term only. Credit three hours a term. Prerequisite: Quechua 131-132 or equivalent. T Th 11:15-1:10.

An intermediate conversation and reading course. Study of the Huarochiri manuscript.

700 Seminar in Quechua Linguistics Either term. Credit to be arranged. Prerequisite: consent of the instructor. Hours to be arranged.

Romance Linguistics

S. P. Durham, R. A. Hall, Jr.

321-322 History of the Romance Languages 321 fall term only; 322 spring term only. Credit four hours a term. Offered in alternate years. T Th 1:25-2:40.

[323-324 Comparative Romance Linguistics] 323 fall term only; 324 spring term only. Credit four hours a term. Offered in alternate years. T Th 1:25-2:40. R. A. Hall, Jr. Not offered in 1974-75.]

620 Areal Topics in Romance Linguistics Either term. Credit four hours. May be repeated for credit. M W F 1:25. S. P. Durham.

Topic for fall 1974: Sermo Plebeius. Topic for spring 1975: comparative Romance field methods.

621 Problems and Methods in Romance Linguistics Fall term. Credit four hours. Offered every third year. M W F 9:05. R. A. Hall, Jr.

[622 Romance Dialectology] Spring term. Credit four hours. Offered every third year. M W F 9:05. Not offered in 1974-75.]

Romance Studies

391 Fictions of Self and the Languages of History Fall term. Credit four hours. Lecture, T 10:10; discussion, Th 10:10-11:25. Conducted in English. R. González, J. Harari, P. Lewis, and G. Mazzotta.

The course is designed to raise critical questions about the rhetoric of the self and history: memory, autobiography, geography of the self and history, translation, work, utopia, revolution, modernity, etc. These questions will be discussed as they appear in writings of Augustine, Dante, Cervantes, Stendhal, Mallarmé, the futurists, Lévi-Strauss, Borges.

Russian

L. H. Babby, E. W. Browne, P. J. Carden, G. Gibian, A. Glasse, R. L. Leed, S. Loltridg, A. Novosilzov, V. Ripp

Russian Major

Russian majors study Russian language, literature, and linguistics, with emphasis placed in accordance with their specific interests.

It is desirable, although not necessary, for prospective majors to complete Russian 101-102, 201-202, 203-204 as freshmen and sophomores since these courses are prerequisite to most of the junior and senior courses which count toward the major. Students may be admitted to the major upon satisfactory completion of Russian 102 or the equivalent.

Students who elect to major in Russian should consult with both P. J. Carden and R. L. Leed as soon as possible.

For a major in Russian, students will be required to complete: (1) Russian 301-302 or 303-304; (2) twenty-four hours from 300- and 400-level literature and linguistics courses of which twelve hours must be in literature in the original.

Prospective teachers of Russian in secondary schools should take Linguistics 101 in the freshman or sophomore year, followed by Russian 403 and 407.

The Honors Program

Students taking honors in Russian undertake individual reading and research, write an honors essay, and take a comprehensive examination at the end of the senior year.

Distribution Requirement

The distribution requirement in the humanities is satisfied in Russian by any two Russian literature courses at the 200-level and above.

101-102 Basic Course 101 fall term only; 102 spring term only. Credit six hours a term. Students who have previously studied Russian should consult p. 20 before registering for this course. Drill, M-F 8, 9:05, 10:10, 11:15, or 12:20; lectures, M W 2:30 or T Th 11:15.

This is a semi-intensive course which gives a thorough grounding in the language—listening, speaking, reading, and writing. It is conducted in small groups with opportunity for contact with native speakers of the language and for laboratory work. (See also Russian 131-132.)

103 Freshman Seminar: Russian Literature Either term. Credit three hours.

107 Freshman Seminar. Two Years in Russia—1846 and 1929 Fall term. Credit three hours. M W F 10:10. Open only to freshmen who are concurrently enrolled in a Russian language course at any level. G. Gibian.

131-132 Elementary Reading Course I 131 fall term only; 132 spring term only. Credit three hours a term. Students who have previously studied Russian

should consult p. 20 before registering for this course. M W F 8 or 3:35.

The aim of this course is primarily to develop skill in reading, although some attention will be devoted to the spoken language, especially to listening comprehension. (See also Russian 101-102.)

133-134 Elementary Reading Course II 133 fall term only; 134 spring term only. Credit three hours a term. Prerequisite: Russian 132 or the equivalent. M W F 3:35.

171-172, 173-174 Elementary Course in Slavic Languages 171 and 173 fall term only; 172 and 174 spring term only. Credit three hours a term. Hours to be arranged. E. W. Browne.

In a given year one of the following languages will be offered according to demand: Serbo-Croatian, Bulgarian, Slovenian, Polish, Czech, or Ukrainian. In 1974-75 Serbo-Croatian 171-172 will be offered.

201-202 Readings in Russian Literature 201 fall term only; 202 spring term only. Credit three hours a term. Prerequisite: Qualification in Russian. Hours to be arranged. S. Loltridge.

Completion of this series is the prerequisite for all 300- and 400-level courses where the reading is done in Russian. Open to freshmen as a humanities seminar. Close reading of selected texts, with attention to their stylistic features and their significance in Russian literary history.

203-204 Composition and Conversation 203 fall term only; 204 spring term only. Credit three hours a term. Prerequisite: Qualification in Russian. M W F 10:10, 12:20 or 1:25; lecture, T 9:05 or 10:10.

207 Russian Literature Fall term. Credit three hours. Enrollment limited to sixty students. M W F 12:20. P. Carden.

An introduction to the major Russian prose writers of the first half of the nineteenth century. The class is conducted as a discussion. One of the goals is to encourage the student to become a more precise and responsive reader of literary texts in general. Works by Pushkin, Lermontov, Gogol, Turgenev, and Goncharov will be read in English translation.

208 Russian Literature Spring term. Credit three hours. Enrollment limited to sixty students. Students who have taken 207 have priority in registering for 208. M W F 12:20. P. Carden.

An introduction to major Russian prose writers of the second half of the nineteenth century and the beginning of the twentieth century. The course may be taken separately, but the themes and goals of the discussion are a continuation of Russian 207 and students are encouraged to register for both semesters. Works by Dostoevsky, Tolstoy, Chekhov, Babel, and Pasternak are read in English translation.

210 Images of Women in Russian Literature

Fall term. Credit three hours. M W 10:10 and one hour to be arranged. B. Monter.

A discussion of the ways in which women have been depicted by Russian authors. There will be discussion of the artistic implications of the subject as well as the social implications. Open to students at any level who have an interest in the situation of women or in Russian literature and culture.

301-302 Advanced Russian Morphology and Syntax 301 fall term only. [302 spring term only. Not offered spring 1975.] Credit four hours a term. Prerequisite: Russian 202 or 203. Hours to be arranged. L. H. Babby.

This is a practical language course in which emphasis is placed on those areas of Russian that are particularly hard for English speakers: aspect, gerunds, participles, -SJA verbs, sequence of tense, etc.

303-304 Advanced Composition and Conversation 303 fall term only; 304 spring term only. Credit four hours a term. Prerequisite: for 303, Russian 204, M W F 11:15 and an additional hour to be arranged. A. Novosilzov.

305-306 Directed Individual Study 305 fall term only; 306 spring term only. Credit two hours a term. Prerequisite: Russian 303-304. Hours to be arranged. A. Novosilzov.

This is a practical language course on an advanced level and is designed to improve oral control of colloquial Russian.

[312 Background of Russian Culture Spring term. Credit four hours. A. Glasse. Not offered in 1974-75.]

[314 Intellectual Background of Russian Literature, 1750-1860 Spring term. Credit four hours. Conducted in Russian. A. Glasse. Not offered in 1974-75.]

331 Russian Poetry Fall term. Credit four hours. Prerequisites: Russian 202 and the consent of the instructor. Hours to be arranged. S. Loltridge.

A survey of nineteenth-century Russian poetry with primary emphasis on analysis of individual poems by major poets. This course counts toward the fulfillment of twelve hours of literature in the original.

332 Russian Theatre and Drama Fall term. Credit four hours. Conducted in English. T Th 10:10-11:25. B. Monter.

A survey of Russian theatre and drama from the beginning to the present time. In translation.

335 Gogol Spring term. Credit four hours. Prerequisites: Russian 202 or the equivalent, consent of the instructor. T Th 12:20-1:35. S. Loltridge.

Readings are in Russian. This course counts towards the fulfillment of twelve hours of literature in the original.

336 Society and Literature Fall term. Credit four hours. T Th 2:30 and one hour to be arranged. V. Ripp.

The rise of realism in nineteenth-century Russia, seen in the context of prevailing intellectual and social issues. Readings include Pushkin, Chernyshevsky, Turgenev, Dostoevsky. In translation.

367 The Russian Novel in Translation Spring term. Credit four hours. M W 11:15 and one hour to be arranged. G. Gibian.

Works of Gogol, Turgenev, Tolstoy, Dostoevsky, Pasternak, Solzhenitsyn, and others. Study of individual works, as well as the tracing of the development of certain formal aspects and themes important to nineteenth- and twentieth-century Russia.

[368 Soviet Literature in Translation Spring term. Credit four hours. Not offered in 1974-75.]

369 Dostoevsky Spring term. Credit four hours. T Th 11:15 and one hour to be arranged. V. Ripp.

A consideration of Dostoevsky's literary and intellectual development, from *Notes from the Underground* to *Brothers Karamazov*. In translation.

[380 Solzhenitsyn and Sinlavy Fall term. Variable credit. G. Gibian. Not offered in 1974-75.]

393 Honors Essay Tutorial Either term. Credit four hours.

401-402 History of the Russian Language 401 fall term only; 402 spring term only. Credit four hours a term. Offered in alternate years. Prerequisites: Qualification in Russian, and Linguistics 101. Hours to be arranged. E. W. Browne.

The study of the divisions of the Russian language chronologically and geographically; the relationships of the Russian language, the Slavic group, the Indo-European group; the changes in the sounds and forms of the Russian language; vocabulary borrowings from Eastern and Western languages.

[403 Linguistic Structure of Russian Fall term. Credit four hours. Prerequisite: Qualification in Russian. Linguistics 101-102 recommended. Hours to be arranged. L. H. Babby. Not offered in 1974-75.]

[406 Linguistic Structure of Russian Spring term. Credit four hours. Prerequisite: Russian 403. Linguistics 101-102 recommended. Hours to be arranged. L. H. Babby. Not offered in 1974-75.]

[407 Russian for Teachers Spring term in alternate year. Credit four hours. Prerequisites: qualification in Russian, Linguistics 101, and Russian 403. Hours to be arranged. R. L. Leed. Not offered in 1974-75.]

431 Russian Prose Fiction Fall term. Credit four hours. Prerequisites: Russian 202 or the equivalent and consent of the instructor. M W 2:30 and one hour to be arranged. G. Gibian.

Short works of the nineteenth and twentieth century. The works read will be chosen according to the needs of the students, but in 1974-75, the emphasis in the course will be on the structural device of showing pictures, and on the theme of the conflict between human separateness and collectivity. This course counts towards the fulfillment of twelve hours of literature in the original.

[432 Pushkin Spring term. Credit four hours. Prerequisites: Russian 202 or the equivalent and consent of the instructor. A. Glasse. Not offered in 1974-75.]

450 Practice Teaching Either term. Credit six hours. Prerequisite: Russian 403. The methods course, Russian 407, may be taken concurrently with practice teaching. Open only to students enrolled in a teacher preparation program.

Students will observe and then participate in teaching classes in the secondary school system. They will also become acquainted with a language laboratory.

492 Supervised Reading in Russian Literature Either term. Variable credit. By initiation of the Department.

499 Origins of the Avant Garde (also Comparative Literature 499) Spring term. Credit four hours. M 2:30-4:10, W 2:30. P. Carden.

Topic for 1975: encyclopedic works. An examination of the attempt by modernist authors to create a work which is an independent universe. An introduction to theories of modernism in the arts followed by discussion of representative works: Joyce's *Ulysses*, Biely's *St. Petersburg*, Pound's *Cantos*, and others. Comparison of similar phenomena in other arts to the extent that there is class interest.

For complete descriptions of courses numbered 600 and above, see the *Announcement of the Graduate School: Course Descriptions*. If the course is not included there, consult the appropriate graduate field representative.

[601 Old Church Slavic Fall term. Credit four hours. Hours to be arranged. Not offered in 1974-75.]

[602 Old Russian Spring term. Credit four hours. Hours to be arranged. Not offered in 1974-75.]

611 Supervised Reading and Research Either term. Credit to be arranged. Prerequisite: consent of the Department.

[617 Russian Stylistics Fall term. Credit four hours. Conducted in Russian. A. Glasse. Not offered in 1974-75.]

618 Russian Stylistics Spring term. Credit four hours. Conducted in Russian. M W F 9:05. A. Glasse. Only grades of S and U will be given.

[620 Studies in Russian Poetry Spring term. Credit four hours. Not offered in 1974-75.]

621 Russian Literature from the Beginnings to 1700 Fall term. Credit four hours. M W 3:30-4:30. P. Carden.

A survey of medieval Russian literature with special emphasis on the aesthetics and literary etiquette of the period. The most significant texts from each century will be closely examined as examples of general problems and themes connected with medieval culture.

[622 Eighteenth-Century Literature] Fall term. Credit four hours. Conducted in Russian. A. Glasse. Not offered in 1974-75.]

623 Early Nineteenth-Century Literature Spring term. Credit four hours. Prerequisite: Russian 622 or consent of the instructor. Conducted in Russian. Hours to be arranged. A. Glasse.

A study of the Alexandrine period through the works of the most influential poets, dramatists, and prose writers. Analyses of such authors as: Zhukovskii, Ba-tiushkov, Griboedov, "pushkinskaia pleiada," and "decembrist" poets. All reading in Russian.

[624 Russian Romanticism] Fall term. Credit four hours. A. Glasse. Not offered in 1974-75.]

[628 Topics in Soviet Literature] Fall term. Credit four hours. Not offered in 1974-75.]

671 Seminar in Nineteenth-Century Russian Literature Fall term. Credit four hours. Th 3:35-5:30. V. Ripp.

Topic for 1974: Russian literary criticism. From the romantic era to formalism and Soviet Marxism, including Nadezhdin, Belinsky, Eikhenbaum, Pereverzev. A consideration of the different methodologies with a focus on what these critics have thought about the development of Russian prose as manifested in the works of such authors as Marlinsky, Lermontov, Odoevsky, Gogol.

672 Seminar in Twentieth-Century Russian Literature Spring term. Credit four hours. Th 3:35-5:30. G. Gibian.

A teaching seminar rather than a research topic seminar. Students will take turns studying, preparing small lectures on, and conducting seminar discussions of, such works of Russian literature as we usually assume have been read by all graduate students, but in fact are not known by them at first hand. Choice of works and themes to be determined by the needs of students registering.

Comparative Slavic Linguistics (Linguistics 671-672)

700 Seminar in Slavic Linguistics According to demand. Credit four hours. Hours to be arranged. L. H. Babby or R. L. Lead.

701 Introduction to Graduate Study Fall term. Credit four hours. T 3:35-5:30. V. Ripp and staff. Only grades of S and U will be given.

Sinhalese

J. W. Gair

101-102 Basic Course 101 fall term only; 102 spring term only. Credit six hours a term. M-F 9:05 and T Th 10:10.

201-202 Sinhalese Reading 201 fall term only; 202 spring term only. Credit three hours a term. Prerequisite: Qualification in Sinhalese. Hours to be arranged.

203-204 Composition and Conversation 203 fall term only; 204 spring term only. Credit three hours a term. Prerequisite: for 203, Sinhalese 202 or consent of the instructor. Hours to be arranged.

See also Linguistics 341, 442, 631, 640, 641, 644.

Spanish

C. M.-Arroyo, U. J. DeWinter, R. O. González, L. Kerr, L. D. King, J. W. Kronik, D. F. Solá, M. A. Suñer

Spanish Major

The Spanish major is designed to give students proficiency in the oral and written language, to acquaint them with the culture of Spain and Spanish America, and to develop their skill in literary and linguistic analysis. Satisfactory completion of the major should enable students to meet language and literature requirements for a provisional teaching certificate, to continue with graduate work in Spanish, or to satisfy standards for acceptance into the training programs of the government, social agencies, or business concerns.

Students electing to major in Spanish will work out a plan of studies in consultation with their major advisers. Previous training and interests will be taken into account. They are encouraged to take related courses in fields such as history, philosophy, anthropology, linguistics, art, music, Classics, English, comparative literature, and other foreign languages and literatures. Interested students are encouraged to seek faculty advice about the major as early as possible. Students interested in Spanish linguistics should consult with M. Suñer in the Department of Modern Languages and Linguistics.

Students majoring in Spanish must have had Spanish 201 and 204 or their equivalent and are normally expected to complete: 1) 315-316 and 303-304 or the equivalent of the latter two courses; 2) twenty-four additional hours in Spanish and Spanish-American literature, and 3) 408. Students with specific vocational goals that suggest a rearrangement of the above program of courses should consult their adviser or the director of undergraduate studies. In particular, students may wish to combine a Spanish major with a concentration of courses in linguistics, comparative literature, or sociology and anthropology. For example, students interested in linguistics may divide their

twenty-four additional hours of 300- and 400-level courses equally between literature and linguistics, in which case they may choose a major adviser from the Department of Modern Languages and Linguistics.

Spanish majors are encouraged to spend all or part of their junior year in Spain or another of the Spanish-speaking countries on one of the study-abroad programs organized by American universities which allow the transfer of grades and credits.

The J. G. White Prizes and Scholarships are available annually to students who achieve excellence in Spanish.

For acceptance into the major students must have approval of the chairman of the Department of Romance Studies and of that Department's director of undergraduate studies in Spanish, U. J. DeWinter.

The Honors Program

The Honors Program in Spanish is open to superior students who wish to undertake guided independent reading and research in an area of their choice. Students in their senior year select a member of the Spanish faculty who will supervise their work and direct the writing of the honors essay.

Teacher Preparation Programs

Cornell offers two teacher preparation programs in modern languages: one at the graduate level (M.A.T.), one at the undergraduate level (leading to provisional certification, valid five years). For information, consult either the Department of Modern Languages and Linguistics or the Department of Romance Studies.

Distribution Requirement

The distribution requirement in the humanities is satisfied in Spanish by any two of the following courses: Spanish 201, 315, 316.

Of the courses listed below, those dealing with literature, as well as Spanish 111-112, are staffed and administered by the Department of Romance Studies, and inquiries regarding them should be addressed to that Department, 278 Goldwin Smith Hall.

The courses dealing with language and linguistics (except 111-112) are offered by the Department of Modern Languages and Linguistics, and are administered by that Department, Morrill Hall.

Languages and Linguistics

101-102 Basic Course 101 fall term only; 102 spring term only. Credit six hours a term. Students who have previously studied Spanish should consult p. 20 before registering for this course. Fall term: drill, M-F 8, 9:05, 10:10, 11:15, 12:20, 3:30; lecture, M W 1:25, 2:30. Spring term: drill, M-F 8, 9:05, 10:10, 11:15; lecture, M W 2:30.

This is a semi-intensive course which gives a thorough grounding in the language—listening, speaking, reading, and writing. It is conducted in small groups with opportunity for contact with native speakers of the language and for laboratory work. (See also Spanish 131-132 and 111-112.)

111-112 Basic Course Throughout the year. Credit four hours a term. Prerequisite: consent of the instructor. M W F 9:05 or 1:25. An additional hour (of conversation) to be arranged. U. J. DeWinter and staff. [Offered by Romance Studies.]

An introductory, all-skills language course, with emphasis on the study of the language in its cultural context. Students will be encouraged to read texts of literary or humanistic value as early as possible. Students who have completed 111 or 101 or who qualify for 102 are eligible for 112. (See also Spanish 101-102 and 131-132.)

131-132 Elementary Reading Course I 131 fall term only; 132 spring term only. Credit three hours a term. Students who have previously studied Spanish should consult p. 20 before registering for this course. M W F 9:05, 11:15, 12:20, or 1:25.

The aim of this course is primarily to develop skill in reading, although some attention will be devoted to the spoken language, especially to listening comprehension. (See also Spanish 101-102 and 111-112.)

133-134 Elementary Reading Course II 133 fall term only; 134 spring term only. Credit three hours a term. Prerequisite: Spanish 132 or the equivalent. Fall term: M W F 11:15, 12:20, 1:25, or 2:30. Spring term: M W F 9:05 or 1:25.

203 Intermediate Composition and Conversation Either term. Credit three hours. Prerequisite: Qualification in Spanish (for definition of Qualification see p. 14.) Fall term: M W F 8, 9:05, 10:10, 11:15, 12:20 or 1:25. Spring term: M W F 8, 12:20, or 1:25.

Guided conversation, grammar review, and oral and written composition. Emphasis is on increasing the student's oral and written command of Spanish.

204 Intermediate Composition and Conversation Spring term. Credit three hours. Prerequisite: Spanish 203. M W F 9:05, 10:10, or 11:15.

The study of advanced grammar. Exercises designed to improve the student's ability to speak, read, and write Spanish.

303-304 Advanced Composition and Conversation 303 fall term only; 304 spring term only. Credit four hours a term. Prerequisite: Spanish 204. M W F 10:10 or 2:30.

The study of fundamental aspects of style in standard spoken Spanish; advanced problems in comparative usage in English and Spanish. Frequent oral and written reports in Spanish are required. Extensive reading in current Spanish language publications. The study of fundamental aspects of style in standard written Spanish. Cultural content is oriented to

Spain in the fall semester and to Spanish America in the spring semester.

401 History of the Spanish Language Fall term. Credit four hours. Prerequisites: Qualification in Spanish, and Linguistics 101 or consent of the instructor. T Th 1:25-2:40.

402 Old Spanish Texts Spring term. Credit four hours. Prerequisite: Qualification in Spanish. T Th 1:25-2:40.

407 Spanish for Teachers Fall term. Credit four hours. Prerequisites: Qualification in Spanish, and Linguistics 101 or consent of the instructor. M W F 2:30.

A course in methodology and applied linguistics for prospective teachers of the Spanish language.

408 The Grammatical Structure of Spanish Spring term. Credit four hours. Prerequisites: Qualification in Spanish, and Linguistics 101 or consent of the instructor. M W 1:25-2:40.

Descriptive analysis of the morphological and syntactical structure of present-day standard Spanish. A survey of current attitudes, methods, materials, and techniques. The application of descriptive linguistics to the organization of lesson material, illustrated mainly through the contrastive study of Spanish and English phonology. Required for provisional New York State teacher certification.

450 Practice Teaching Either term. Credit six hours. Prerequisite: Spanish 408 (the methods course, Spanish 407 may be taken concurrently with practice teaching). Open only to students enrolled in a teacher preparation program.

Students will observe, and then participate in teaching classes in the secondary school system. They will also become acquainted with a language laboratory.

For complete descriptions of courses numbered 600 or above, see the *Announcement of the Graduate School: Course Descriptions*. If a course is not included there, consult the graduate field representative.

601 Hispanic Dialectology Spring term. Credit four hours. Prerequisite: consent of the instructor. T Th 1:25-2:40.

602 Linguistic Structures of Ibero-Romance Either term. Credit four hours. Offered according to demand.

603 Contemporary Theories of Spanish Phonology Fall term. Credit four hours. Prerequisite: consent of the instructor. T 1:25-3:25.

604 Contemporary Theories of Spanish Grammar Either term. Credit four hours. Offered according to demand.

The Comparative Study of the Romance Languages (Romance Linguistics 321-322, 323-324, 620, 621, 622)

700 Seminar in Ibero-Romance Linguistics According to demand. Credit four hours. Hours to be arranged.

Literature

105 Freshman Seminar: Literature and Ideologies in Contemporary Latin-American Writing Fall term. Credit three hours. M W F 11:15.

R. González.

The interplay of conflicting interpretations of Latin-American history and reality in the works of Octavio Paz, Alejo Carpentier, Pablo Neruda, Severo Sarduy, and others. Readings, papers, and class discussion in English.

106 Freshman Seminar: The Spanish-American Literary Avant-Garde Spring term. Credit three hours. T Th 8:40-9:55. L. Kerr.

Today's Spanish-American linguistic and cultural reality as evidenced in five major novels of the last decade: *Hopscotch* (Cortázar), *One Hundred Years of Solitude* (García Márquez), *Three Trapped Tigers* (Cabrera Infante), *Betrayed* by Rita Hayworth (Puig), and *The Obscene Bird of Night* (Donoso). Special attention to be given to problems of narrative technique in these texts. Readings, papers, and class discussion in English.

201 Introduction to Hispanic Literature Either term. Credit three hours. Class conducted mainly in Spanish. Prerequisite: Qualification in Spanish or consent of the instructor. (For definition of Qualification, see p. 14.) Fall term: M W F 9:05, 1:25, 2:30; T Th 10:50-12:05. Spring term: M W F 12:20, 1:25; T Th 2:30-3:45. J. Kronik and staff.

An intermediate reading course in which texts from Spain and Spanish America are read and analyzed. The course is designed to develop reading and speaking facility in Spanish and to develop critical and analytical skills in the appreciation of literary texts. (The literature course that normally follows Spanish 201 is either Spanish 315 or 316.)

315 Readings in Golden Age Spanish Literature Spring term. Credit four hours. Prerequisite: Spanish 201 or four years of entrance Spanish or consent of the instructor. This course is not prerequisite to 316. M W F 12:20. C. M.-Arroyo.

A study of the concepts of Renaissance, mysticism, and baroque as they are reflected in representative Spanish works of the sixteenth and seventeenth centuries.

316 Readings in Modern Hispanic Literature Either term. Credit four hours. Conducted in Spanish. Prerequisite: Spanish 201 or four years of entrance Spanish or consent of the instructor. Fall term: T Th

10:10-11:25. Spring term: M W F 1:25. C. M.-Arroyo and J. Kronik.

Reading and discussion of representative texts of the nineteenth and twentieth centuries from Spain and Spanish America: Galdós, Unamuno, García Lorca, Darío, Neruda, Borges, and others.

[329 Spanish-American Literature to "Modernismo"] Fall term. Credit four hours. Not offered in 1974-75.]

[330 Spanish-American Literature from "Modernismo" to the Present] Spring term. Credit four hours. Not offered in 1974-75.]

[332 Twentieth-Century Spanish-American Drama] Spring term. Credit four hours. Not offered in 1974-75.]

334 The Spanish-American Short Story: The "Genre Fantastique" Spring term. Credit four hours. Prerequisite: Spanish 315 or 316 or consent of the instructor. T Th 10:50-12:05. L. Kerr.

Theoretical readings and discussion of the fantastic and the short narrative form will lead to an intensive analysis of the works of Jorge Luis Borges and Julio Cortázar: an examination of these texts both as part of the development of the *genre fantastique* and the Spanish American *cuento* tradition.

[362 Drama of the Spanish Golden Age] Spring term. Credit four hours. Not offered in 1974-75.]

368 Poetry of the Spanish Golden Age Spring term. Credit four hours. Prerequisite: Spanish 315 or 316 or consent of the instructor. W F 11:15-12:30. U. De Winter.

Analysis of selected poetry of Boscán, Garcilaso, the *Romancero*, Fray Luis de León, San Juan de la Cruz, Góngora, and others. Discussion of theoretical problems of poetry and the poetic tradition.

385 The Nineteenth-Century Spanish Novel: Literature and Society in Galdós and Clarín Fall term. Credit four hours. Prerequisite: Spanish 315 or 316 or consent of the instructor. T Th 2:30-3:45. J. Kronik.

The major novels of Galdós and Clarín, including *Fortunata y Jacinta* and *La Regenta*, will be studied structurally and in the context of their sociohistorical setting. Supplementary readings in the European novel and in Marxist critical theory (Lukács, Goldmann).

390 The Humanities in Liberal Education (also Comparative Literature 319) Fall term. Credit four hours. T Th 1:00-2:15. C. M.-Arroyo.

The course deals with the nature of humanistic knowledge in comparison to the natural and social sciences. The value of facts, generalization, comparison, aesthetic and human evaluation. The type and degree of truth and certainty we can reach in hu-

manistic studies. It is divided in three parts: humanities, humaneness, humanism.

[392 The Post-Civil War Drama in Spain] Spring term. Credit four hours. Not offered in 1974-75.]

396 The Post-Civil War Novel in Spain Spring term. Credit four hours. Prerequisite: Spanish 315 or 316 or consent of the instructor. M W 2:30-3:45. J. Kronik.

The search for form and the search for social expression in the contemporary generation of Spanish novelists: Cela, Delibes, Sánchez Ferlosio, Goytisolo, and others.

[398 Modern Hispanic Poetry] Spring term. Credit four hours. Not offered in 1974-75.]

419-420 Special Topics in Hispanic Literature Throughout the year. Credit four hours a term. Prerequisite: consent of the instructor. Staff.

Guided independent study of specific topics.

429-430 Honors Work in Hispanic Literature Throughout the year. Credit four hours a term. Prerequisites: senior status and consent of instructor. Staff.

[435 The Modern Spanish-American Novel] Fall term. Credit four hours. Not offered in 1974-75.]

436 Spanish-American Prose Fiction since 1965 Spring term. Credit four hours. Prerequisite: Spanish 315 or 316 or consent of the instructor. Th 2:30-4:30. L. Kerr.

A study of three contemporary writers—Cabrera Infante, Puig, Donoso—in the light of current modes of writing and interpretation. Readings and discussion to be directed towards an in-depth analysis of the linguistic and structural problems presented by these texts, as well as their place within the development of twentieth-century Spanish-American prose fiction.

[440 Medieval Literature] Fall term. Credit four hours. Not offered in 1974-75.]

455 The Picaresque Novel (also Comparative Literature 463) Fall term. Credit four hours. Prerequisite: consent of the instructor. W 2:30-4:30. R. González.

A detailed study of the picaresque novel in Europe from its Spanish models in the sixteenth century to Lesage and Fielding. Readings will include *Lazarillo de Tormes*, Mateo Alemán's *Guzmán de Alfarache*, Quevedo's *Buscón*, and *Grimmelshausen's Simplicissimus*. Discussion devoted to critical controversies about the picaresque, the concept of realism, the development of the novel, the feminine picaresque, and early manifestations of the picaresque in Latin America. Readings in English and in the original. Class conducted in English.

466 Cervantes Spring term. Credit four hours. Prerequisite: Spanish 315 or 316 or consent of the instructor. W 3:50-5:50. C. M.-Arroyo.

A study of *Don Quixote* and its place in the history of the classical novel. Conducted in Spanish.

[480 Romanticism in Spain] Spring term. Credit four hours. Not offered in 1974-75.]

[481 Eighteenth- and Nineteenth-Century Spanish Drama] Fall term. Credit four hours. Not offered in 1974-75.]

494 Studies in Spanish Literature from 1914 to 1936 Fall term. Credit four hours. Prerequisite: Spanish 315 or 316 or consent of the instructor. W F 11:15-12:30. U. De Winter.

Main topics of discussion are: aesthetic problems related to the dehumanization of art, the Spanish literary vanguard in the context of European and American literatures, and the intellectual and lyrical novels. Readings in the works of Ortega y Gasset, Pérez de Ayala, Miró, Gómez de la Serna, D'Ors, Jarnés, Larrea, and others.

[630 Principles of Esthetics and Literary Criticism] Spring term. Credit four hours. Not offered in 1974-75.]

[636 Graduate Seminar in Spanish American Literature] Spring term. Credit four hours. Not offered in 1974-75.]

639-640 Special Topics in Hispanic Literature Throughout the year. Credit four hours a term. To be taken by all new graduate students. Hours to be arranged. Staff.

Swedish

J. M. Echols

131-132 Elementary Reading Course 131 fall term only; 132 spring term only. Credit three hours a term. M W F 9:05.

Tagalog

J. U. Wolff

[101-102 Basic Course] 101 fall term only; 102 spring term only. According to demand. Credit six hours a term. Prerequisite: consent of the instructor. Hours to be arranged. Not offered in 1974-75.]

[201-202 Tagalog Reading] 201 fall term only; 202 spring term only. Credit three hours a term. Prerequisite: Tagalog 102. Hours to be arranged. Not offered in 1974-75.]

[300 Linguistic Structure of Tagalog] Either term. Credit four hours. Prerequisite: Linguistics 101. Hours to be arranged. J. U. Wolff. Not offered in 1974-75.]

Tamil

J. W. Gair

101-102 Basic Course 101 fall term only; 102 spring term only. Credit six hours a term. Hours to be arranged.

Telugu

G. B. Kelley

[101-102 Basic Course] 101 fall term only; 102 spring term only. Credit six hours a term. Drill, M-F 9:05; lecture, T Th 10:10. Not offered in 1974-75.]

[201-202 Telugu Reading] 201 fall term only; 202 spring term only. Credit three hours a term. Prerequisite: Qualification in Telugu. Hours to be arranged. Not offered in 1974-75.]

(See also Linguistics 341, 440, 646)

Thai

R. B. Jones, Jr., R. Mendiones

101-102 Basic Course 101 fall term only; 102 spring term only. Credit six hours a term. M-F 9:05; T Th 10:10.

201-202 Thai Reading 201 fall term only; 202 spring term only. Credit three hours a term. Prerequisites: for 201, Qualification in Thai; for 202, Thai 201. M W F 11:15.

203-204 Composition and Conversation 203 fall term only; 204 spring term only. Credit three hours a term. Prerequisites: for 203, Qualification in Thai; for 204, Thai 203. Hours to be arranged.

301-302 Advanced Thai 302 fall term only; 302 spring term only. Credit four hours a term. Prerequisite: Thai 201-202 or the equivalent. M W F 1:25.

Selected readings in Thai writings in various fields.

303-304 Thai Literature 303 fall term only; 304 spring term only. Credit four hours a term. Prerequisite: Thai 301-302 or the equivalent. Hours to be arranged.

Reading of some of the significant novels, short stories, and letters written since 1850.

401-402 Directed Individual Study 401 fall term only; 402 spring term only. For advanced students. Credit four hours a term. Prerequisite: consent of the instructor. Hours to be arranged.

Vietnamese

F. E. Huffman

101-102 Basic Course 101 fall term only; 102 spring term only. Credit six hours a term. M-F 9:05; T Th 10:10.

201-202 Vietnamese Reading 201 fall term only; 202 spring term only. Credit three hours a term. Prerequisite: for 201, Qualification in Vietnamese; for 202, Vietnamese 201. Hours to be arranged.

203-204 Composition and Conversation 203 fall term only; 204 spring term only. Credit three hours a term. Prerequisites: for 203, Qualification in Vietnamese; for 204, Vietnamese 203. Hours to be arranged.

301-302 Advanced Vietnamese 301 fall term only; 302 spring term only. Credit four hours a term. Prerequisite: Vietnamese 201-202 or the equivalent. Hours to be arranged.

303-304 Vietnamese Literature 303 fall term only; 304 spring term only. Credit four hours a term. Prerequisite: Vietnamese 301-302 or the equivalent. Hours to be arranged.

Reading of selections from contemporary literature.

401-402 Directed Individual Study 401 fall term only; 402 spring term only. Credit four hours a term. Prerequisite: consent of the instructor. For advanced students.

Music

D. M. Randel, chairman; W. W. Austin, M. Bilson, J. T. H. Hsu, K. Hsu, S. Lubin, S. Monosoff, R. M. Palmer, D. R. M. Paterson, T. A. Sokol, M. W. Stith, B. Troxell, J. Webster, N. A. Zaslav

There are two options available to the student planning to major in music. At the core of both options is a program which carries the study of music to an advanced level through the deliberate integration of performance, music theory, and music history. This core program sets standards which the Department of Music believes all serious students of music must meet, regardless of the role which music may ultimately play in their lives. Option I is designed to allow the student greater opportunity to elect courses in fields other than music. Option II is designed for the student interested in a more specialized program with a view toward graduate study and a career in music.

Option I presupposes some musical background and the satisfactory completion of Music 151-152 by the end of the sophomore year. Students unable to meet the requirements for admission to Music 151 must elect Music 141-142 as freshmen. The student will be expected to pass a keyboard examination at some point during his or her four years, normally by the end of the sophomore year.

The requirements for the Bachelor of Arts degree with a major in music under Option I include four semester courses in music theory (251-252 and 351-352), three semester courses in music history (381-382 plus one other numbered 300 or above), and

four semesters of participation in a musical organization or ensemble.

Option II presupposes considerable musical studies before entering and the satisfactory completion of Music 251-252, normally by the end of the sophomore year.

The requirements for the Bachelor of Arts degree with a major in music under Option II include three semester courses in music theory (351-352 and 451 or 453), three semester courses in music history (381-382 plus one other numbered 300 or above), and two semesters of participation in a musical organization.

In addition, the student majoring in music under Option II will concentrate in one of the following areas: A. Theory and Composition. The student concentrating in theory and composition will elect, during the junior and senior years, four additional semester courses in this area plus Music 462 or 463. These courses may include Music 401-402.

B. Music History. The student concentrating in music history will elect, during the junior and senior years, four additional semester courses in this area plus Music 462 or 463. These courses may include Music 401-402. Two of the four may be drawn from the offerings of other departments.

C. Performance. The student who has shown exceptional promise as a performer during the freshman and sophomore years, as demonstrated in part by a solo recital, may concentrate in performance by electing, during the junior and senior years, four semesters of private instruction in his or her major instrument plus two semesters of chamber music.

Students contemplating a program in music under either option should arrange for placement examinations and auditions during the orientation period of the freshman year or earlier if possible. Before entering the major, each student should choose an adviser from among the department's faculty members.

The Honors Program

The Honors Program in music is intended to provide a special distinction to the Department's ablest undergraduate majors. To become a candidate for honors in music a student must be invited by the faculty at the beginning of the second semester of the junior year. As soon as possible thereafter the student will form a committee of three faculty members to guide and evaluate the honors work. In the senior year the candidate will enroll in Music 401-402 with the chairman of the Honors Committee as instructor. Candidates will be encouraged to formulate programs that will allow them to demonstrate their total musical ability. The level of honors conferred will be based on the whole range of the independent work in this program of which a major part will culminate in an honors thesis, composition, or recital, to be presented not later than April 1, and a comprehensive examination to be held not later than May 1.

Distribution Requirement

The distribution requirement in the expressive arts is satisfied in music with any six hours in music. A maximum of three hours in courses from Music 331 through 338 and 441 through 444 may be used to satisfy this requirement.

Facilities

A large collection of recorded music and scores is housed in the Department of Music, where listening facilities are provided in the Music Library. These facilities may be used by any member of the student body at hours to be announced each term.

Choral and instrumental ensembles are trained and directed by members of the departmental staff each term, and all students who are interested are invited to join one or more of these groups. These ensembles include the Sage Chapel Choir, the Cornell Chorus, the Cornell University Glee Club, the bands (marching band, wind ensemble, symphonic band, brass ensembles), the Cornell Symphony Orchestra, the Cornell Chamber Orchestra, and chamber music groups. For rehearsal hours and conditions for academic credit, see Music 331 through 338 and 441 through 444. Announcements of tryouts for all organizations will be made at the beginning of the fall term.

Music Theory

141-142 Rudiments of Music Theory 141 fall term only; 142 spring term only. Credit three hours a term. May not be counted toward the requirements for the major in music; does not prepare directly for Music 151-152. Some familiarity with music is desirable, but no knowledge is required. Fall term, M W 9:05 and two additional hours to be arranged. J. Webster. Spring term, T Th 1:25 and two additional hours to be arranged. S. Lubin.

An elementary, self-contained introduction to music theory, emphasizing fundamental musical techniques, theoretical concepts, and their application. Music 141: ear training; notation, pitch, meter; intervals, scales, triads; basic concepts of tonality; extensive listening to music in various styles; intensive listening and analysis of representative works of Bach, Mozart, and Debussy. Music 142: a technical continuation, open to students receiving a grade of B- or better in Music 141. Systematic introduction to contrapuntal part writing; writing of musical passages and small pieces in the style of J. S. Bach four-part chorale harmonizations and simple J. S. Bach and Mozart keyboard works.

151-152 Elementary Theory 151 fall term only; 152 spring term only. Credit four hours a term. Students intending to major in music under Option II should enroll in Music 151-152 during their freshman year. A knowledge of the rudiments of music and some ability to perform are required for admission. Registration for this course is provisional, depending

upon the demonstration of adequate background and ability in proficiency tests given on the first two days of the term. M W F 9:05 and Th 2:30-4:15. D. R. M. Paterson.

Designed for students expecting to major in music and other qualified students. An integrated theory course required for admission to the music major. Detailed study of the fundamental elements of tonal music: rhythm, scales, intervals, triads; melodic movement, two-part counterpoint, harmonic progression in the chorale style of J. S. Bach; and introduction to analysis of small forms. Drill in aural discrimination, sight singing, keyboard harmony, and elementary figured bass; rhythmic, melodic, and harmonic dictation; and score reading.

251-252 Intermediate Theory 251 fall term only; 252 spring term only. Credit four hours a term. Prerequisite: a grade of C or better in Music 152 or the equivalent. M W F 10:10, Th 1:25-3. J. T. H. Hsu.

Continuation of study and writing in the chorale style of J. S. Bach, concentrating on seventh chords; also study of secondary dominants, modulation, augmented sixth chords, and the Neapolitan. Introduction to writing small forms using piano textures, combined with analysis of larger forms and sonatinas. Analysis and writing of two- and three-voice chorale preludes. Ear training, keyboard harmony, and score reading.

351-352 Advanced Theory 351 fall term only; 352 spring term only. Credit four hours a term. Prerequisite: a grade of C or better in Music 252 or the equivalent. T Th 9:05 and one additional hour to be arranged. Fall term, J. Webster. Spring term, S. Lubin.

351: inventions, chromatic harmony, analysis of larger forms and nineteenth-century music, ear training, score reading, and advanced keyboard studies including figured bass. 352: introduction to some techniques of composers from 1900 to 1950, including expanded tonal resources, atonality, and new approaches to form and rhythm. Analysis of representative smaller works by Bartók, Hindemith, Schoenberg, Stravinsky, Webern, and some American composers. Writing assignments in various styles.

[451 Modal Counterpoint and Analysis] Spring term. Credit four hours. Prerequisite: Music 352 or the equivalent with a grade of C or better. R. M. Palmer. Not offered in 1974-75.]

453 Fugue Spring term. Credit four hours. Prerequisite: a grade of C or better in Music 352 or the equivalent. M 12:20-2:15, Th 1:25. R. M. Palmer.

Advanced problems of contrapuntal writing in three voices. An introduction to invertible counterpoint and fugal writing. Representative works employing the fugal principle will be analyzed with particular attention to those of J. S. Bach.

[456 Orchestration] Spring term. Credit four hours. Prerequisite: Music 352 or the equivalent. K. Husa. Not offered in 1974-75.]

460 Electronic Music Composition Fall term. Credit three hours. Prerequisites: Music 252 and consent of the instructor. Enrollment limited to ten students. M 1:25-4:25. M. W. Stith and staff.

A study of the basic techniques of writing music by electronic means. This will involve musique concrète, tape recorder techniques such as re-recording and splicing. It will also include the use of synthesizers. Works by electronic music composers and readings from a bibliography of the current literature will be studied. Students will be allotted studio time for carrying out class projects and assignments.

[462 Orchestral Conducting] Spring term. Credit two hours. Prerequisite: Music 352. K. Husa. Not offered in 1974-75.]

463 Choral Conducting Spring term. Credit two hours. Prerequisite: Music 252 or the equivalent. F 2:30-4:10. T. A. Sokol.

A study of the techniques of choral music: conducting, score reading, rehearsing, and arranging music for chorus.

[464 Choral Style] Spring term. Credit two hours. Prerequisite: Music 352 or the equivalent. T. A. Sokol. Not offered in 1974-75.]

Music History

[204 *The Enchanted Island, Seven Days in May, 1664*] Spring term. Credit three hours. M. A. Carlson, A. Seznec, and N. A. Zaslaw. Not offered in 1974-75.]

213 The Art of Music: Symphonies and Sonatas in the Context of Song and Dance Fall term. Credit three hours. T Th 11:15 and one discussion section to be arranged. W. W. Austin and assistants.

A survey of old and new, easy and difficult music, designed to speed up the continuing development of various independent tastes. Frequent short written reports based on listening, beating time, and singing. Each topic, such as rhythm, chords, etc., is illustrated by recent popular music, folk music, jazz, church music, and concert music. Students choose individually which types to emphasize in their study, but all learn enough of the other types to build up a sense of continuities amid the contrasts among historical styles.

[214 Opera] Spring term. Credit three hours. D. M. Randel. Not offered in 1974-75.]

218 Chopin, Chalkovsky, Musorgsky Spring term. Credit three hours. Lecture-recital, T Th 11:15. Discussion section to be arranged. W. W. Austin, G. Gibian, and staff.

Chief works of the three composers, including symphonies, concertos, and operas, are studied through phonograph records. Piano music and chamber mu-

sic are presented in live performance. The biographical, social, and intellectual contexts of the music are considered in relation to concerns of the present; students' essays may deal with such concerns more than any technical aspect of the music, though techniques are not neglected.

219 Chopin, Chalkovsky, Musorgsky Spring term. Credit one hour. Seminar for students capable of reading in Russian. Open only to students concurrently enrolled in Music 218. M 2:30. G. Gibian.

[315 Brahms, Wagner, and the End of an Era] Fall term. Credit four hours. Prerequisite: any course in music or consent of the instructor. D. M. Randel. Not offered in 1974-75.]

[316 Music and Poetry in France: Late Middle Ages and Renaissance] Spring term. Credit four hours. Prerequisite: consent of either instructor. Of most interest to students who have done some work in music or in French literature. A good reading knowledge of French will be a practical necessity. D. M. Randel, E. P. Morris, and guest lecturers. Not offered in 1974-75.]

318 Baroque Instrumental Music Spring term. Credit four hours. Prerequisite: any course in music or consent of the instructor. M W F 12:20. N. A. Zaslaw.

A survey of the major schools, genres, and styles from the emergence of purely instrumental music in the sixteenth century until the disappearance of the trio sonata and *ritornello* concerto in the mid-eighteenth century. Various instrumental works of the late baroque (by Vivaldi, Bach, Handel, and others) will be considered in their historical contexts. The Cornell University Trio will provide live demonstrations.

381 Monteverdi to Mozart Fall term. Credit four hours. Prerequisite: Music 152 or consent of the instructor. T 11:15, Th 11:15-1:10. J. Webster.

The history of music from the emergence of baroque style around 1600 through the Classical period at the end of the eighteenth century. Emphasis on works of Monteverdi, Schütz, Purcell, J. S. Bach, Handel, Haydn, and Mozart.

382 Beethoven to Debussy Spring term. Credit four hours. Prerequisite: Music 151 or consent of the instructor. T 11:15, Th 11:15-1:10. D. M. Randel.

The history of musical styles from Beethoven's time through the beginning of the twentieth century. Emphasis on works of Beethoven, Schubert, Schumann, Chopin, Verdi, Wagner, Brahms, Mahler, and Debussy.

385 Schoenberg, Bartók, and Stravinsky Fall term. Credit three hours. Prerequisite: ability to play (on any instrument) a piece from Bartók's *Mikrokosmos*, vol. 1. M W 11:15. W. W. Austin.

A survey of the three composers' works, of their interactions with each other, and of their connections with some of the literary, artistic, political, and religious concerns of their time.

[387 Mozart] Fall term. Credit four hours. Prerequisite: any course in music or consent of the instructor. N. A. Zaslaw. Not offered in 1974-75.]

Seminar on Jazz Research (Society for the Humanities 421)

Seminar on the History of Jazz (Society for the Humanities 422)

[481 Music in Western Europe to Josquin] Fall term. Credit four hours. Prerequisite: consent of the instructor. W 2:30-4:25 and one additional hour to be arranged. N. A. Zaslaw.

482 Josquin to Monteverdi Fall term. Credit four hours. Prerequisite: Music 382 or consent of the instructor. W 2:30-4:25 and one additional hour to be arranged. N. A. Zaslaw.

The principal forms of sacred and secular music in Western Europe from the motets and chansons of Josquin Desprez to Claudio Monteverdi's fifth book of madrigals. Special attention to the development of national styles and their confluence.

Independent Study

301-302 Independent Study in Music Either term. Credit one to four hours a term. Limited to juniors and seniors who are majoring in music. Department approval required. Hours to be arranged. Staff.

The Honors Program

401-402 Honors in Music Credit four hours a term. Open only to honors candidates in their senior year. Staff.

Musical Performance

321-322 Individual Instruction in Voice, Organ, Piano, String, Woodwind, and Brass Instruments 321 fall term only; 322 spring term only. Credit two hours a term. Undergraduate credit only. Music 321 is not prerequisite to Music 322. Admission by audition only; students may not preregister.

Basic fee for one half-hour lesson weekly during one term (carrying no credit), \$60. Fees for a practice schedule of six hours weekly during one term: \$30 for the use of a pipe organ; \$15 for a practice room with piano; \$5 for a practice room without piano. For credit: one hour lesson weekly (or two half-hours) and a double practice schedule earn two hours credit per term, provided that the student has earned, or is earning, at least three hours credit in courses in music history or music theory for every four hours credit in Music 321-322. The basic fees involved are then multiplied by one and one-half (lesson fee \$90; practice fee \$45, \$22.50, and \$7.50). All fees are nonrefundable once classes begin, even if registration is subsequently canceled by the student. A stu-

dent may register for this course in successive years. The Department of Music offers a limited number of scholarships for lesson fees. For information inquire at the Department of Music office.

391-392 Advanced Individual Instruction 391 fall term only; 392 spring term only. Credit four hours a term. Open only to juniors and seniors who are majoring under Option II with concentration in performance. Music 391 is not prerequisite to Music 392.

Musical Organizations and Ensembles

Students may participate in musical organizations and ensembles throughout the year and obtain one credit hour per term. Consent of the instructor is required, and admission is by audition only, except in the Sage Chapel Choir. Registration is permitted in two of these courses simultaneously, and students may register in successive years, but no student may earn more than six hours of credit in these courses. Membership in these and other musical organizations is also open to students without credit, if desired.

331-332 Sage Chapel Choir No audition for admission. M 7-8:30 p.m., Th 7-8:30 p.m., Sunday 9:30 a.m. D. R. M. Paterson.

333-334 Cornell Chorus T 7:15-9 p.m., Sunday 2:15-3:45 or 7:15-9 p.m. Consent of the instructor is required. T. A. Sokol.

335-336 Cornell Orchestra Rehearsals for the Cornell Symphony Orchestra: full orchestra, W 7:30-10 p.m.; sectional rehearsals, alternate T or Th 7:30-10 p.m. Rehearsals for the Cornell Chamber Orchestra, M 7:30-10 p.m. (Limited to more experienced players.) K. Husa.

337-338 University Bands During football season: marching band, T Th 7:15-9:15 p.m., F 4:30-5:45; symphonic band, T Th 4:30-5:45. After football season: wind ensemble, M 7:15-9:15 p.m., W 4:30-5:45; symphonic band T 4:30-5:45, Th 7:15-9:15 p.m. M. W. Stith.

340 Ear Training and Sight Singing Spring term. Open only to students who are participating in a University musical ensemble. Consent of the instructor is required. Music 339 is not prerequisite to Music 340. T 3:35. T. A. Sokol.

A practical course designed to improve the student's conception of melody and rhythm and sight reading ability. Progressive class exercises in intervals, rhythms, melodies, and counterpoints.

441-442 Chamber Music Ensembles Consent of the instructor is required. Hours to be arranged. S. Monosoff and J. T. H. Hsu.

Study and performance of chamber music literature; string and wind groups, piano trios and quartets, trio sonatas, etc. Emphasis on musical problems, with some practice in sight reading.

443-444 Chamber Singers Consent of the instructor is required. F 4:30-6. T. A. Sokol.

Study and performance of selected vocal music.

Graduate Courses and Seminars

Primarily for graduate students. Open to qualified undergraduates with consent of the instructor. For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Course Descriptions*. If a course is not included there, consult the graduate field representative.

[616 Music and Poetry in France: Late Middle Ages and Renaissance] Spring term. Credit four hours. D. M. Randel and E. P. Morris. Not offered in 1974-75.]

651 Twentieth-Century Classics, European and American Fall term. Credit four hours. T 10:10-12:05. R. M. Palmer.

653 Analysis of Structure and Function in Tonal Music Spring term. Credit four hours. Qualified upperclassmen may enroll with consent of the instructor. T 10:10, Th 10:10-12:05. S. Lubin.

[655 Seminar in Analytic Techniques for Twentieth-Century Music] Fall term. Credit four hours. S. Lubin. Not offered in 1974-75.]

657-658 Composition 657 fall term only; 658 spring term only. Credit four hours a term. W 2:30-4:25. R. M. Palmer.

659-660 Seminar in Composition 659 fall term only; 660 spring term only. Credit four hours a term. T 2:30-4:25. K. Husa.

681-682 Introduction to Bibliography and Research 681 fall term only; 682 spring term only. Credit four hours a term. Prerequisites: a reading knowledge of French and German, and an elementary knowledge of music theory and general music history. M 2:30-4:25. Fall term, M. A. Keller. Spring term, W. W. Austin.

[683 Early Theories of Tonality] Fall term. Credit four hours. J. Webster. Not offered in 1974-75.]

[684 Seminar in Renaissance Music] Spring term. Credit four hours. N. A. Zaslav. Not offered in 1974-75.]

685 Schoenberg, Bartók, and Stravinsky Fall term. Credit five hours. Prerequisites: ability to play Stravinsky's *Pieces for the Five Fingers*, and a reading knowledge of one relevant foreign language—French, German, Russian, or Hungarian. M W F 11:15. W. W. Austin.

[686 Beethoven] Spring term. Credit four hours. S. Lubin. Not offered in 1974-75.]

687 Mozart Fall term. Credit four hours. Th 2:30-4:25. N. A. Zaslav.

688 Music of the Grand Siècle Spring term. Credit four hours. Th 2:30-4:15.

[689 Haydn] Fall term. Credit four hours. Prerequisites: Music 653 or the equivalent, and a reading knowledge of German. J. Webster. Not offered in 1974-75.]

783-784 Seminar in Medieval Music 783 fall term only; 784 spring term only. Credit four hours a term. W 9:05-11:00. D. M. Randel.

[787-788 Debussy to Boulez] 787 fall term only; 788 spring term only. Credit four hours a term. W. W. Austin. Not offered in 1974-75.]

[789-790 Liturgical Chant in the West] 789 fall term only; 790 spring term only. Credit four hours a term. D. M. Randel. Not offered in 1974-75.]

Philosophy

N. Kretzmann, chairman; M. Black, R. N. Boyd, O. Chateaubriand, R. M. Dancy, C. A. Ginet, D. B. Lyons, N. A. Malcolm, R. W. Miller, S. S. Shoemaker, R. C. Stalnaker, N. L. Sturgeon, A. W. Wood

Students expecting to major in philosophy should begin their study of it in their freshman or sophomore years. Admission to the major is granted by the chairman of the Department on the basis of the student's work during the first two years.

Eight philosophy courses are required for the major. These must include at least one course in ancient philosophy, at least one other course in the history of philosophy, and at least three courses numbered above 300, at least one of which must be numbered above 400 (with the exception of 490). Philosophy 201 and 231, while not required, are especially recommended for majors or prospective majors.

Philosophy majors must also complete at least eight hours of course work in related subjects approved by their major advisers.

The Honors Program

A candidate for honors in philosophy must be a philosophy major with a cumulative average of B- or better for all work in the College of Arts and Sciences and an average of B or better for all work in philosophy. In either or both terms of the senior year a candidate for honors enrolls in Philosophy 490 and undertakes research leading to the writing of an honors essay by the end of the final term. Prospective candidates should apply to the Department of Philosophy.

Distribution Requirement

The distribution requirement in the humanities is sat-

ified in philosophy by completing any two courses in philosophy, with the following exceptions: (a) Philosophy 100 if used in satisfying the freshman seminars requirement; (b) a combination of two courses in formal logic, such as 231, 431, 432, and 436.

Introductory Courses

100 Freshman Seminar in Philosophy Either term. Credit three hours. Open only to freshmen who have not taken Philosophy 101. Independent sections. Fall term: M W 10:10-11:25, D. Auerbach; M W 1:25-2:40, R. Miller and S. Ginet; M W 2:30-3:45, S. Shoemaker; T Th 2:30-3:45, G. Postema, N. Kretzmann. Spring term: M W 1:25-2:40, N. Malcolm and O. Chateaubriand; T Th 2:30-3:45, N. Malcolm, R. Dancy and N. Sturgeon; M W 2:30-3:45, G. Postema; M W 10:10-11:25; T Th 12:20-1:35.

Central topics in various areas of philosophy are studied and discussed in sections of this course. Offered as part of the Freshman Seminars Program.

101 Introduction to Philosophy Either term. Credit three hours. Open only to students who have not taken Philosophy 100. Fall term: M W F 1:25. R. Boyd. Spring term: lectures, T Th 10:10; discussions, T Th 11:15. D. Lyons.

An introduction to philosophical ideas and problems through a study of the writings of several philosophers. Topic for both terms: relativism and objectivity in morality and science.

Courses Primarily for Undergraduates

All 200- and 300-level courses in philosophy are designed primarily for undergraduates and are open to sophomores, juniors, and seniors except as noted in the course descriptions. The 200-level courses generally have no prerequisites. Some 300-level courses have prerequisites which instructors may waive in individual cases. (Graduate students may enroll in 300-level courses only with permission of the instructor.)

201 Philosophical Problems Fall term. Credit four hours. T Th 2:30-3:45. N. Malcolm.

Topic for 1974-75: minds, behavior, and brains.

211 Ancient Philosophy Spring term. Credit four hours. T Th 12:20-1:35. R. Dancy.

A study of major themes in ancient thought, particularly that of Plato and Aristotle.

212 Modern Philosophy Fall term. Credit four hours. Also open to freshmen who have taken Philosophy 100 or 101. T Th 12:20-1:35. A. Wood.

A survey of the history of European philosophy in the seventeenth and eighteenth centuries. Philosophers representing continental rationalism, British empiricism, and German idealism will be studied.

[213 Existentialism and Phenomenology] Not offered in 1974-75.]

231 Introduction to Logic Either term. Credit four hours. Also open to freshmen. Fall term: T Th 10:10-11:25. O. Chateaubriand. Spring term: M W F 11:15. C. Ginet.

The analysis and evaluation of deductive reasoning in terms of formalized languages (the sentential calculus and the first-order predicate calculus with identity).

232 Semantics Spring term. Credit four hours. M W F 9:05. N. Kretzmann.

A survey of the philosophy of language and symbolism including discussion of the nature of communication, speech acts, and theories of meaning.

241 Ethics Fall term. Credit four hours. T Th 9:05, and discussion to be arranged. D. Lyons.

An introduction to the philosophical study of moral problems and to ethical theories. Topics include relativism, egoism, the relations of facts to values, utilitarianism and justice.

242 Social and Political Philosophy Spring term. Credit four hours. Also open to freshmen who have taken Philosophy 100 or 101. M W F 1:25. R. Miller.

A historical survey of philosophical thinking about the nature and norms of human society.

243 Aesthetics Spring term. Credit four hours. Also open to freshmen who have taken Philosophy 100 or 101. T Th 2:30-3:45. R. Miller.

An introduction to philosophical problems concerning the nature of art, aesthetic value, and critical reasoning. Typical subjects discussed include classical attempts to define the nature of genuine art, the objectivity of aesthetic judgment, the relation between the value of a work of art and the truth of the ideas it embodies.

[244 Philosophy in Literature] Not offered in 1974-75.]

261 Knowledge and Reality Spring term. Credit four hours. Also open to freshmen who have taken Philosophy 100 or 101. T Th 10:10-11:25. N. Sturgeon.

An introduction to philosophical problems concerning the nature of knowledge, certainty and belief, perceptual knowledge, a priori knowledge, and concepts of cause, truth, substance, identity, essence, and abstract entities. Topic for 1974-75: thoughts and their objects.

262 Philosophy of Mind Spring term. Credit four hours. T Th 3:35 and a third hour to be arranged. S. Shoemaker.

An introduction to philosophical problems concerned with the mind-body problem, knowledge of other minds, the nature of self-consciousness and self-awareness, personal identity, and freedom of the will.

263 Religion and Reason Spring term. Credit four hours. M W F 10:10. A. Wood.

A survey of topics related to the rational understanding and assessment of theism in the Western tradition.

311 Modern Rationalism Spring term. Credit four hours. Open to students who have had at least two courses in philosophy. T Th 1:25 and a third hour to be arranged. C. Ginet.

Topic for 1974-75: the philosophy of Leibniz.

312 Modern Empiricism Fall term. Credit four hours. Open to students who have had at least one course in philosophy. M W F 9:05. N. Sturgeon.

A study of the philosophies of the major British empiricists, in particular Locke, Berkeley, and Hume.

313 Medieval Philosophy Spring term. Credit four hours. M W F 11:15. E. Stump.

A study of selected classic works in medieval philosophy.

[314 Topics in Ancient Philosophy] Not offered in 1974-75.]

317 Kant and Hegel Fall term. Credit four hours. Open to students who have had at least one course in philosophy. T Th 2:30-3:45. A. Wood.

Topic for 1974-75: Kant's *Critique of Pure Reason*.

[318 Twentieth-Century Philosophy] Not offered in 1974-75.]

319 Philosophy of Marx Spring term. Credit four hours. Open to students who have had at least one course in philosophy. M W F 2:30. A. Wood.

An investigation of the philosophical aspects of Marx's social and economic theory and his critique of the capitalist mode of production. Readings will include selections from *Capital* as well as Marx's earlier writings.

[341 Ethical Theory] Not offered in 1974-75.]

342 Law, Society, and Morality Fall term. Credit four hours. Open to students who have had at least one course in philosophy. T Th 11:15 and a third hour to be arranged. D. Lyons.

Problems and theories in political philosophy with an emphasis on the law. Topics include legal positivism and natural law, the role of coercion in law, problems of punishment, limitations on liberty, justice and the general welfare.

361 Metaphysics and Epistemology Fall term. Credit four hours. Open to students who have had at least one course in philosophy. M W F 11:15. S. Shoemaker.

Topic for 1974-75: causality and induction.

381 Philosophy of Science Fall term. Credit four hours. Open to students who have had at least one course in philosophy. M W F 10:10. R. Boyd.

An examination of certain topics that arise in attempting to understand the historical development and the logical setting of science: theories and observation, explanation, and the testing of hypotheses.

[382 Philosophy and Psychology] Not offered in 1974-75.]

383 Philosophy of Choice and Decision Fall term. Credit four hours. Open to students who have had at least one course in philosophy or at least one course related to the subject matter of the course. T Th 2:30-3:45. M. Black.

A conceptual analysis of the factors that typically enter into rational decision under risk or uncertainty, including calculation of alternatives and the associated probabilities, the corresponding values or utilities attached to the various outcomes, the subject's scales of preference, and so on.

386 Philosophical Problems in the History of Biology (also History 386) Spring term. Credit four hours. M W F 11:15. R. Boyd and W. Provine.

Philosophical problems arising in the history of biology. Emphasis will be placed upon the tension between mechanism and vitalism in the development of biology and psychology, and upon problems of the social significance of these fields.

[387 Philosophy of Mathematics] Not offered in 1974-75.]

388 Social Theory Fall term. Credit four hours. Open to students who have had at least one course in philosophy or at least two in the social sciences. M F 12:20 and a third hour to be arranged. R. Dancy.

A philosophical examination of problems that arise in the social sciences; a consideration of the basic concepts involved in explanation in those sciences. In 1974-75 special emphasis on economics.

[389 Philosophy of History] Not offered in 1974-75.]

390 Informal Study Either term. Credit to be arranged. To be taken only in exceptional circumstances and by arrangement made by the student with his or her adviser and the faculty member who has agreed to direct the study. Staff.

Advanced Courses and Seminars

All 400-level courses in philosophy are designed primarily for advanced undergraduates, philosophy majors, and graduate students. All 600-level courses in philosophy are seminars designed primarily for graduate students. The 400- and 600-level courses are open to others only by consent of the instructor as indicated in the course description. Credit for each

course is four hours.

[413 **Plato and Aristotle** Not offered in 1974-75.]

431 Deductive Logic Spring term. Credit four hours. Prerequisite: Philosophy 231 or the equivalent. M W F 1:25. R. Boyd.

The first-order predicate calculus: proof theory and model theory; the completeness theorem. Theories and definitions. Axiomatic set theory: sets, functions, relations, cardinals, ordinals, the recursion theorem.

[432 **Deductive Logic** Not offered in 1974-75.]

433 Philosophy of Logic Fall term. Credit four hours. Prerequisites: Philosophy 431 or Mathematics 381 or permission of instructor. T Th 12:20-1:35. O. Chateaubriand.

The nature of logic. Logical truth. Logical notions. Our knowledge of logic. Is first-order logic the right logic? Higher-order logic. Nonclassical logics (intuitionistic, many-valued, etc.). Philosophical significance of some central logical theorems (Löwenheim-Skolem, completeness, incompleteness).

[435 **Inductive Logic** Not offered in 1974-75.]

436 Intensional Logic Fall term. Credit four hours. Prerequisite: Philosophy 231 or equivalent. M W F 1:25. D. Auerbach.

Topics chosen from: intensional logic, pragmatics, modal logic, tense logic, deontic logic, intuitionistic logic, description theory, and others.

[437 **Problems in the Philosophy of Language** Not offered in 1974-75.]

[441 **Contemporary Ethical Theory** Not offered in 1974-75.]

[442 **Problems in Ethics and Philosophy of Mind** Not offered in 1974-75.]

461 Metaphysics Spring term. Credit four hours. Open to graduate students and undergraduates who have had at least two courses in philosophy. T Th 10:10-11:25. S. Shoemaker.

Topic for 1974-75: identity of things and persons.

462 Theory of Knowledge Fall term. Credit four hours. Open to graduate students and undergraduates who have had at least two courses in philosophy. T Th 10:10-11:25. N. Malcolm.

Topic for 1974-75: Wittgenstein.

[481 **Problems in the Philosophy of Science** Not offered in 1974-75.]

490 Special Studies in Philosophy Either term. Credit four hours. Open only to honors students in their senior year. Staff.

611 Ancient Philosophy Fall term. Credit four hours. W 3:45-5:40. R. Dancy.

Topic for 1974-75: Aristotle on substance.

[612 **Medieval Philosophy** Not offered in 1974-75.]

613 Modern Philosophers Fall term. Credit four hours. F 3:45-5:40. N. Sturgeon.

Topic for 1974-75: Hobbes and the British moralists.

619 History of Philosophy Spring term. Credit four hours. F 3:45-5:40. N. Kretzmann.

Topic for 1974-75: eternity, time, and change.

[631 **Logic** Not offered in 1974-75.]

[632 **Semantics** Not offered in 1974-75.]

633 Philosophy of Language Spring term. Credit four hours. W 3:45-5:40. O. Chateaubriand.

Topic for 1974-75: Frege's philosophy of language.

641 Ethics and Value Theory Spring term. Credit four hours. Th 3:45-5:40. D. Lyons.

Topic for 1974-75: Mill on justice, rights, and liberty.

661 Theory of Knowledge Fall term. Credit four hours. M 3:45-5:40. R. Miller.

Topic for 1974-75: skepticism, causal theories of knowledge.

662 Philosophy of Mind Spring term. Credit four hours. M 3:45-5:40. N. Malcolm.

Topic for 1974-75: memory.

[663 **Philosophy of Religion** Not offered in 1974-75.]

[664 **Metaphysics** Not offered in 1974-75.]

[665 **Metaphysics** Not offered in 1974-75.]

[681 **Philosophy of Science** Not offered in 1974-75.]

700 Informal Study Either term. Credit to be arranged. To be taken by graduate students only in exceptional circumstances and by arrangement made by the student with his or her Special Committee and the faculty member who has agreed to direct the study. Staff.

Related Courses in Other Departments

Chinese Philosophical Literature (Asian Studies 371)

Greek Philosophy (Classics 444)

Greek Philosophy (Classical Civilization 224)

Foundations of Western Thought (Comparative Literature 336)

Kierkegaard (Comparative Literature 478)

Elementary Mathematical Logic (Mathematics 381)**Seminar in Jewish and Islamic Philosophy (Semitics 243)****Seminar on Eternity, Time and Change (Society for the Humanities 417)****Seminar on Renaissance Dialectic and Method (Society for the Humanities 423-424)**

Physics

R. M. Littauer, chairman; V. Ambegaokar, N. W. Ashcroft, K. Berkelman, H. A. Bethe, R. Bowers, D. G. Cassel, G. V. Chester, R. M. Cotts, J. W. DeWire, M. E. Fisher, D. B. Fitchen, B. Gittelman, K. Gottfried, K. Greisen, L. N. Hand, D. L. Hartill, P. L. Hartman, D. F. Holcomb, T. Kinoshita, J. B. Kogut, J. A. Krumhansl, D. M. Lee, H. Mahr, B. D. McDaniel, N. D. Mermin, C. J. Naegele, H. F. Newhall, J. Orear, M. D. Ott, R. O. Pohl, J. D. Reppy, R. C. Richardson, E. E. Salpeter, R. H. Siemann, A. J. Sievers, III, R. H. Silsbee, A. Silverman, P. C. Stein, R. M. Talman, S. Teukolsky, D. H. White, J. W. Wilkins, K. G. Wilson, W. M. Woodward, T. M. Yan, D. R. Yennie

Four different introductory physics sequences are open to freshmen: Physics 101-102 (4-4 credit hours), 112-213-214-315 (4-4-4-3 credit hours), 201-202 (3-3 credit hours), and 207-208 (4-4 credit hours). Advanced placement and credit are offered in one or more courses in each sequence except 201-202. For details about advanced placement see p. 000, or the leaflet *Advanced Placement of Freshmen*, or Professor R. M. Cotts, 522 Clark Hall. Physics 101-102 has a prerequisite of three years of college-preparatory mathematics. Both Physics 112 and 207 have a prerequisite of calculus (the equivalent of Mathematics 191 or 111), and additional mathematics is prerequisite for the succeeding physics courses. Physics 101-102 or 207-208 may be appropriately taken as terminal physics courses. The three- or four-term sequence, beginning with Physics 112, is recommended for physics major students and for students in the College of Engineering. Physics 201-202 is specifically designed for students who do not intend to major in any science; this course does not prepare the student for more advanced work in any science.

For the general student who may wish to pursue some physics beyond the introductory level as a matter of interest, or in support of his or her own major program, several courses are particularly appropriate: 205 Energy, 330 Modern Experimental Optics, and 360 Introductory Electronics. Descriptions and prerequisites will be found in the course description section. Transfer students who submit physics course credit received at another college should

consult with the department chairman concerning placement in the Cornell physics program.

Physics Major

Various options provide the student majoring in physics with the opportunity to concentrate heavily in physics or to take less physics and pursue an accompanying constellation of "outside" courses. For the more intensive physics concentration providing a strong preparation for professional or graduate work, Physics 112, 213, and 214 (and preferably 315) and Mathematics 191, 192, 293, and 294 or Mathematics 111, 122, 221 and 222 should be completed by the end of the sophomore year. For a less intensive physics program, Physics 112, 213, and 214 or 207 and 208 (with Mathematics 111, 112, 214-215-216-218, and 315), serve well as basic preparation. The less intensive program, with its minimal requirements, is a relaxed one, designed to allow ample time for the related studies.

A prospective physics major is urged to visit the Department office as soon as possible for an appointment for advice in planning a possible program. Acceptance into the major program is normally granted after the student has completed a year of physics and mathematics at a satisfactory level of proficiency. At the time of acceptance by a physics major adviser, the student is expected to propose a tentative plan for completing all the requirements for graduation, including those of the major. The plan may change from time to time; however, in its final form it must be approved by the major adviser. The major requirements are satisfied by completing two components—a core component and a concentration component.

Core

The core requirements consist of: (a) Physics 112, 213, and 214 or Physics 207-208, and (b) an intermediate level Physics course in each of four areas: mechanics (318 or 431), electricity and magnetism (325 or 432), modern physics (e.g., 315), and laboratory physics (310, 360, or 410). Mathematics courses which serve as prerequisites for the physics courses are also necessary.

Concentration

This component shall reflect the individual student's interests in some area related to physics and the array of courses must have internal coherence. The concentration shall include at least fifteen credit hours, unless otherwise stated, with at least eight credit hours in courses at the junior-senior level (numbered above 300). Illustrative concentrations are: physics; mathematics; biology and chemistry; astrophysics; natural sciences; engineering; computer science; science, technology, and society; environmental studies; intellectual history, or history and philosophy of science; city planning and urban development; and business and economics.

The concentration in physics is recommended as preparation for professional or graduate work in physics or in any closely related discipline. Twelve credit hours from physics courses numbered above 300, in addition to those selected for the (b) part of the core requirements, are required. In satisfying the first three of the (b) core requirements, courses 318, 325, and 315 or 443 should be elected. For this concentration, completion of the following courses is strongly advised: Physics 410 and 443, Mathematics 421, 422, and 423; and at least one course selected from the group consisting of Physics 341, 444, 454, Applied Physics IPD401, Astronomy 431-432, and Geological Sciences 485-486. For concentrations outside physics, courses 315, 431, 432, and 310 or 360 form a natural core. Students pursuing the concentration in physics who wish to emphasize preparation for work in astronomy or astrophysics should consult the Astronomy section of this *Announcement* for suggested courses.

For the concentration in mathematics, fifteen credit hours of mathematics courses, all with numbers greater than 300, are required. A combined biology and chemistry concentration is recommended for premedical students or those who wish to do subsequent work in biophysics.

Concentration in the natural sciences is particularly appropriate for students interested in teacher preparation. Details of some typical concentrations are available in the Physics Department Office.

Foreign Language Requirement

Students who have an interest in eventual graduate work are advised to meet the foreign language requirement with work in French, German, or Russian.

The Honors Program

A student may be granted honors in Physics upon the recommendation of the Physics Advisers Committee of the physics faculty.

Distribution Requirement

The distribution requirement in physical science is satisfied by Physics 101-102, 201-202, 207-208, or 112-213, or by the first term of any of these sequences followed by the second term of another. Physics 201-202 is particularly designed for students who do not expect to do further work in any branch of science.

Students wishing to take a course for which they do not have a stated prerequisite must obtain the consent of the instructor.

101-102 General Physics 101 fall term only; 102 spring term only. Credit four hours per term. Prerequisite: three years of high school mathematics including some trigonometry. Course 101 (or 112 or 207) is prerequisite to 102. Includes more modern physics and less mathematical analysis than 207-208 or 112-

213, but more mathematical analysis than 201-202. Students who plan to major in a physical science should elect physics 207-208 or 112 and 213-214. An audio-tutorial (A-T) format of instruction will be used, allowing students to work in a learning center at hours of their own choice. Large group meetings, W 9:05 or 10:10. Fall term: K. Greisen, C. Naegele, and staff. Spring term: D. Cassel, D. Holcomb, C. Naegele, and staff.

Basic principles of physics treated quantitatively but without calculus. Major topics in the first term are the particle structure of matter; kinematics; forces and fields (including electrical fields); momentum, angular momentum, energy (including nuclear energy); and thermal physics. The second term includes relativity; electrical and optical phenomena and quantum physics. The laboratory activities in the learning center emphasize instrumentation, measurement, and interpretation of data. Textbook for 1974-75 *Physics for College Students—with applications to the Life Sciences*. 1974, by Tilley and Thumm, supplemented extensively with course notes.

112 Physics I: Mechanics and Heat Either term. Credit four hours. Primarily for students of engineering and for prospective majors in physics. Prerequisite: coregistration in Mathematics 192 (or 112). Lectures, Fall term: M F 10:10 or 12:20. Spring term: W F 10:10 or 12:20. Two discussion periods a week and one two-hour laboratory period every other week to be arranged. Preliminary examinations will be held at 7:30 p.m. October 1, November 5, February 18, and April 1. Fall term: J. Burns and staff. Spring term: J. Orear and staff.

The mechanics of particles: kinematics, dynamics, introduction to special relativity, conservation laws, central force fields, and periodic motion. The mechanics of many particle systems: center of mass, simple rotational mechanics of a rigid body, static equilibrium. Kinetic theory of simple gases. At the level of *Fundamentals of Physics* by Halliday and Resnick.

201-202 Great Ideas of Modern Physics 201 fall term only; 202 spring term only. Credit three hours a term. Course 201 is prerequisite to 202. Intended for nonscientists and does not serve as a prerequisite to any further science course. Although no scientific background will be assumed, some high school algebra and plane geometry will be used, and interesting properties of numbers will be mentioned, when relevant. Lectures M W F 2:30. An additional hour, to be arranged, will be devoted to discussion. N. D. Mermin and staff.

The student for whom the course is intended should be tired of not knowing what is the Second Law of Thermodynamics, be curious about whether time can run slowly (or backwards), and be intrigued that twentieth-century physics can contribute something to the problem of free will. Topics are likely to include the relativistic theory of space, time, and gravity; the difference between right and left; entropy and the "heat death of the universe;" the nature of light; quantum theory and the indeterminacy principle; and

related subjects. Although the emphasis will not be on the history or philosophy of physics, subjects will be selected in the belief that the forms and features of human thought they reveal are not without more general significance.

205 Energy Fall term. Credit three hours. Prerequisites: one year of college-level physics or chemistry and one term of calculus. M W F 8. D. Holcomb and guest lecturers.

Energy sources and conversion processes will be studied from two perspectives: the basic physics of energy and its conversion from one form to another, and the use of energy by man. Topics will include gravitational and mechanical energy, electromagnetic energy, thermal processes, the laws of thermodynamics, chemical and nuclear reactions, radioactivity, solar energy, and the behavior of exponential processes. Study of the history of man's use of energy and future prospects for energy sources for the earth will be based upon quantitative examination of relevant conversion processes.

207-208 Fundamentals of Physics 207 fall term only; 208 spring term only. Credit four hours a term. Prerequisite for 207: at least coregistration in Mathematics 112 or 106 and high school physics. Course 207 (or either 101 or 112) is prerequisite to 208. Intended as the first college physics course for most students majoring in a physical science, in mathematics, or in an analytically oriented biological science. Demonstration lectures, M W 9:05 or 11:15. Two discussion periods a week and one three-hour laboratory period in alternate weeks to be arranged. Preliminary examinations will be held at 7:30 p.m. on October 8, November 5, March 4, April 8. H. F. Newhall and staff.

Taught on the core-plus-branch plan. In each term, the first nine weeks is devoted to the core material: 207, particle mechanics and waves; 208, electromagnetic fields and circuits. The lecture-discussion-laboratory format is followed for the core material. For the last five weeks of each term, each student selects one branch topic and the work on this topic is done on an unstructured, self-paced basis. Some possible branches for 207 are: thermodynamics, acoustics and the physics of music, special relativity, or gravitation. Possible branches for 208 are: geometrical optics, physical optics, electronics, wave-particle duality, low energy nuclear physics, elementary particles. The core material will be presented at the level of *Elementary Classical Physics*, 2nd ed., by Weidner and Sells.

213 Physics II: Electricity and Magnetism Either term. Credit four hours. Primarily for students of engineering and for prospective majors in physics. Prerequisites: Physics 112 and Mathematics 192 or 112. Lectures, T Th 9:05 or 11:15. Two discussion periods a week to be arranged. One two-hour laboratory period a week to be arranged. Preliminary examinations will be held in the fall term, at 7:30 p.m. on October 3, November 7 and in the spring term on

February 25, and April 8. Fall term, R. Pohl. Spring term, B. Batterman.

Electrostatics, behavior of matter in electric fields, magnetic fields, Faraday's Law, electromagnetic oscillations and waves, magnetism, and relativity. At the level of *Fundamentals of Physics* by Halliday and Resnick. Laboratory work supplements the written and oral work. Experiments deal with electrical measurements, dc and ac circuits, resonance phenomena, physical electronics, electrical conduction, and selected properties of electric and magnetic fields.

214 Physics III: Optics, Waves, and Particles

Either term. Credit three hours. Primarily for students of engineering and for prospective majors in physics. Prerequisites: Physics 213 and Mathematics 293 or 221; coregistration in Physics 216 or 310. Lectures, T Th 9:05 or 11:15. Two discussion periods a week to be arranged. Preliminary examinations will be held at 7:30 p.m. in the fall term on October 3, November 7, and December 5, and in the spring term on February 27, April 3, and May 1. Fall term, R. C. Richardson. Spring term, D. H. White.

Wave phenomena; electromagnetic waves; physical optics; quantum effects, matter waves; uncertainty principle; introduction to wave mechanics, elementary applications. At the level of *Fundamentals of Optics and Modern Physics* by H. D. Young.

216 Laboratory to Accompany Physics 214 or 218

Either term. Credit one hour. Coregistration in Physics 214 or 218 required. One two-hour period to be arranged.

Experiments include optics, lasers, atomic spectroscopy, solid state, and nuclear and particle physics.

217 Physics II: Electricity and Magnetism Either term. Credit four hours. A more rigorous version of Physics 213 for those students who have done work of high quality in Physics 112 and who wish to take part in a more thorough treatment of basic electricity and magnetism than that of Physics 213. Students wishing to take this course should preregister for it. Acceptance into the course will be determined by the instructor. Engineering students should seek the approval of the adviser before registering. Physics majors are encouraged to register for this course in place of Physics 213. T Th S 11:15. One two-hour laboratory period every week to be arranged.

A study of the fundamentals of electromagnetism based on the material in *Electricity and Magnetism* by Purcell (Volume II, Berkeley Physics Series).

218 Physics III: Optics, Waves and Particles Either term. Credit three hours. A special section of 214. Same conditions govern enrollment as for 217. T Th S 11:15.

310 Intermediate Experimental Physics Either term. Credit two or three hours. Prerequisite: Physics 208 or 213. Laboratory T Th 1:25-4:25. May be taken concurrently with Physics 214 or 218 and in place of 216 with the consent of a student's adviser. Recommended as a replacement for Physics 216 for

students planning a physics major. Physics major students who have come from Physics 208 and who plan to use this course in satisfaction of the core requirement for laboratory work should register for three hours credit. R. Siemann.

Students select from a variety of experiments at an intermediate level, and as a final project design and perform an experiment of their own choice. Students are encouraged to develop their own approach to each experiment. Facilities of the 410-510 laboratory will be available for some experiments.

315 Microphysics Spring term. Credit three hours. Primarily for students of engineering and prospective majors in physics. Prerequisites: Physics 214, Mathematics 294 or coregistration in Mathematics 315. T Th S 11:15. D. Fitchen.

Introduction to quantum and statistical physics of atoms, solids, and nuclei; and current topics. At the level of *Modern Physics*, 2nd ed., by R. L. Sproull.

318 Analytical Mechanics Spring term. Credit four hours. Prerequisites: Physics 208 or 214 and Mathematics 421. M W F 11:15 and F 1:25. (Applied Physics I PA333 taught in fall term, is an approximate equivalent of this course.) K. Greisen.

Analytical mechanics of material particles, systems of particles and rigid bodies; oscillating systems; planetary motion, stability of orbits; collisions; waves; fluid motion; Euler's equations; gyroscopic motion; Lagrange's equations; Hamilton's equations; relativistic mechanics. At the level of *Mechanics* by Symon.

325 Electricity and Magnetism Fall term. Credit four hours. Prerequisites: Physics 208 or 214 and coregistration in Mathematics 421. Lectures, T Th S 11:15 and Th 1:25. B. Gittelman.

Electrostatics: electric charge and fields, potential, multipoles, conductors, Laplace equation and formal solutions, field energy, dielectric materials, polarization. Magnetostatics: currents, magnetic fields and vector potential, magnetic materials, field energy, Maxwell's equations, Poynting vector. Electrodynamics: plane waves, fields from moving and oscillating charges. At the level of *Lectures on Physics*, Volume II, by R. P. Feynman and *Foundations of Electromagnetic Theory* by Reitz and Milford.

326 Electromagnetic Waves and Physical Optics Spring term. Credit four hours. Prerequisite: Physics 325. Lectures T Th S 9:05 and W 1:25. A. Sievers.

Electrodynamics: applications of Maxwell's equations, wave equation, transmission lines, wave guides, radiation, special relativity. Physical optics: reflection, refraction, dispersion, polarization, Fresnel and Fraunhofer diffraction. At the level of *Electricity and Magnetism* by Slater and Frank and *Optics* by Sommerfeld.

330 Modern Experimental Optics Spring term. Credit three hours. Prerequisite: one year of physics. Lecture and laboratory, M 1:25-3:30 and one afternoon T W Th or F 1:25-4:15. H. Mahr and staff.

A practical, laboratory-based course for students of physical and biological science. Students will select four to five subject units to match their interests and backgrounds. The list of units includes: physics of lasers, image formation, holography, spectroscopy, light pulses, coherence and correlation, diffraction, and interference, light sources and detectors. Each unit involves several laboratory experiments taken from a set of varying difficulty and sophistication, and readings, supplementary notes, and problems. The course will serve as an introduction to modern optical techniques and equipment used in current research in biology, chemistry, physics, astronomy, etc.

341 Thermodynamics and Statistical Mechanics Fall term. Credit four hours. Prerequisites: Physics 214 and Mathematics 294. T Th S 9:05 and T 2:30. J. Krumhansl.

Concepts of temperature, laws of thermodynamics, Carnot cycles, entropy, thermodynamic relations, free energies, phase equilibrium, multicomponent systems, chemical reactions, and thermodynamic stability criteria. Application of thermodynamics to physical systems. Introduction to statistical mechanics including a treatment of Maxwell-Boltzmann, Bose-Einstein, and Fermi-Dirac statistics with applications. Elementary transport theory. At the level of *Fundamentals of Statistical and Thermal Physics* by Reif, or of *Thermal Physics* by Morse.

360 Introductory Electronics Either term. Credit four hours. Prerequisite: Physics 208 or 216 or consent of the instructor. Lecture, M 1:25-3:20. Laboratory, T Th 1:25-4:25 or W F 1:25-4:25. Fall term, R. Cotts. Spring term, P. Stein.

Introduction to the principles of semiconductor devices, of electronic components and circuits, and to the operating characteristics of power supplies, amplifiers, oscillators, switching, digital, and timing circuits, etc. At the level of *Instrumentation for Scientists* series, 1973, by Malmstadt, Enke, and Crouch.

400 Informal Advanced Laboratory Either term. Credit one to three hours. Prerequisite: two years of physics and consent of instructor. Laboratory, T W or Th F 1:25-4:25. P. Hartman, A. Silverman, and staff.

Experiments of widely varying difficulty in one or more of a number of areas, as listed under course Physics 410, may be done to fill the student's special requirements.

410 Advanced Experimental Physics Either term. Credit four hours. Limited to seniors except by special permission. Prerequisites: Physics 216 or 310 or 360, 318, and 325 or consent of the instructor. Lecture, M 2:30-4:25. Laboratory: fall term T W or Th F 1:25-4:25; spring term T W 1:25-4:25. P. Hartman, A. Silverman, and staff.

Lectures and problems on selected topics in experimental concepts and techniques. About seventy different experiments are available among the sub-

jects of mechanics, acoustics, optics, spectroscopy, electrical circuits, electron and ion physics, heat, x-rays and crystal structure, solid state physics, cosmic rays, and nuclear physics. The student is expected to perform three to six diverse experiments, depending on difficulty, selected to meet individual needs and interests. Stress is laid on independent work.

431-432 Introductory Theoretical Physics I and II 431 fall term only; 432 spring term only. Credit four hours a term. Prerequisites: completion of the equivalent of Physics 207-208; for course 432, either 431 or its equivalent, and coregistration in Mathematics 421-422, or consent of the instructor. Primarily for graduate students in a science other than physics (e. g., in chemistry, engineering, or biology) who wish to prepare for theoretical advanced work in their own fields and for physics majors with concentrations outside physics. M W F S 11:15. Fall term, D. H. White.

Fall term: mechanics. Includes Newtonian mechanics, Lagrange's and Hamilton's equations, central forces, rigid body motion, and small oscillations. At the level of *Classical Dynamics* by Marion. Spring term: electricity and magnetism. Includes electrostatics, magnetostatics, boundary value problems, dielectric and magnetic media, circuit theory, Maxwell's equations, and propagation of electromagnetic waves. At the level of *Classical Electromagnetic Radiation*, 3rd ed., by Marion.

443 Introductory Quantum Mechanics Fall term. Credit four hours. Prerequisites: Physics 318 and 325 or 431-432, Mathematics 421, and some knowledge of atomic physics at the level of *Modern Physics* by Sproull. M W F 9:05 and M 1:25. L. Hand.

This course is intended to serve as an introduction to the concepts and techniques of quantum mechanics, a subject which underlies much of modern physics. At the level of *Introduction to Quantum Theory* by Park.

444 Nuclear and High-Energy Particle Physics Spring term. Credit four hours. Prerequisite: Physics 443 or consent of the instructor. M W F 9:05 and F 1:25. K. Gottfried.

Behavior of high-energy particles and radiation; elementary particles; basic properties of nuclei; nuclear reactions; nuclear forces; cosmic rays; general symmetries and conservation laws of nature. At the level of *Nuclei and Particles* by Segre.

454 Introductory Solid State Physics Spring term. Credit four hours. Prerequisite: Physics 443, or Chemistry 793, or consent of the instructor. T Th S 10:10 and Th 3:35. J. Wilkins.

A topical treatment of condensed matter physics, including electron theory of metals, superconductivity, superfluidity, and magnetism. At the level of *Introduction to Solid State Physics*, 4th ed., by Kittel.

464 Physics of Macromolecules Fall term. Credit three hours. Prerequisite: a course in quantum me-

chanics. Lecture, T Th 10:10. Discussion or guest lecture, T 2:30. Offered in alternate years. D. Fitchen.

An introduction to the physics associated with models for, and the experimental investigation of, the structure and physical properties of macromolecules. Primary emphasis will be on macromolecules of biological interest.

481-489 Special Topics Seminars Either term. Credit two hours. Prerequisite: senior physics major status or consent of instructor. F 2:30-4:25. Only grades of S and U will be given.

One selected topic of current interest will be studied, taken from areas such as general relativity and gravitation, particle accelerators, magnetic resonance, superconductivity and superfluidity, topics in biophysics. Seminar format will be used and students will participate in organization and oral presentation of material. Topic for fall 1974: magnetic resonance. R. Cotts.

490 Independent Study in Physics Either term. Credit one to three hours a term. Ordinarily limited to seniors. Prerequisite: consent of the professorial staff member under whose direction the work is to be done must be obtained before registration. Hours to be arranged.

Individual project work. Reading or laboratory work in any branch of physics.

500 Informal Graduate Laboratory

505-506 Design of Electronic Circuitry

510 Advanced Experimental Physics

520 Projects in Experimental Physics

551 Formalism of Classical Mechanics Fall term. Credit two hours. Prerequisite: Physics 318. T Th 10:10. D. Yennie.

Lagrangian and Hamiltonian formulation of classical mechanics. At the level of *Mechanics* by Landau and Lifshitz.

553 General Relativity Fall term. Credit three hours. Prerequisite: knowledge of special relativity at the level of, for example, *Classical Mechanics* by Goldstein. Offered in alternate years. T Th 8:30-9:55. S. Teukolsky.

A systematic introduction to Einstein's theory, with emphasis on modern coordinate-free methods of computation. Topics include: review of special relativity, modern differential geometry, foundations of general relativity, laws of physics in the presence of a gravitational field, experimental tests of gravitation theories. At the level of *Gravitation* by Misner, Thorne, and Wheeler.

554 Applications of General Relativity Spring term. Credit three hours. Prerequisite: Physics 553. Offered in alternate years. T Th 8:30-9:55. S. Teukolsky.

A continuation of Physics 553 with emphasis on applications to astrophysics and cosmology. Topics include: relativistic stars, gravitational collapse and black holes, gravitational waves, cosmology.

561 Classical Electrodynamics Fall term. Credit three hours. Prerequisites: Physics 325 or 432, and coregistration in Mathematics 415 or 423, or consent of the instructor. T Th F 9:05.

562 Thermal, Statistical, and Continuum Physics Spring term. Credit three hours. Prerequisites: Physics 318 and 443 or coregistration in Physics 572 or consent of the instructor. M W F 9:05.

572 Quantum Mechanics I Either term. Credit three hours. Prerequisites: Physics 443, and at least coregistration in Physics 551 and Mathematics 415 or 423, or consent of the instructor. M W F 11:15.

574 Quantum Mechanics II

612 Experimental Atomic and Solid State Physics

614 Experimental High-Energy Physics

635 Solid State Physics I

636 Solid State Physics II

645 Nuclear Physics

646 High-Energy Particle Physics

Only S-U grades will be given in courses numbered 650 or above.

651 Advanced Quantum Mechanics

652 Quantum Field Theory

653 Statistical Physics

654 Theory of Many-Particle Systems

661 High-Energy Phenomena

667 Topics in Theoretical Astrophysics

681-689 Special Topics The particular topics will be announced just before the start of each term.

690 Independent Study in Physics

The Major

Prerequisites for admission are: (a) any three courses in psychology (Human Development and Family Studies 115 may be counted toward the three course requirement; credit cannot be received for Psychology 101 after having received credit for Education 110). The student will generally begin with Psychology 101; (b) no grade below C+ in any psychology course; (c) acceptance by the Admissions Committee of the Department of Psychology.

Application forms may be obtained at the departmental office and should be filed two weeks before the preregistration period.

Requirements for the major are: (a) a total of forty hours in psychology (including prerequisites) in which students majoring in psychology are expected to choose, in consultation with their advisers, a range of courses which cover the basic processes in psychology; laboratory experience is strongly recommended; (b) completion, by the beginning of the senior year, of an approved course in statistics, or the passing of an achievement examination administered by the department.

With the permission of the major adviser, courses in other departments may be accepted toward the major requirements.

Concentration in Social Psychology

In cooperation with the Department of Sociology, a concentration in social psychology is available. Psychology majors who wish to specialize in social psychology are expected to meet the general requirements set by the Department, including statistics and laboratory. To ensure a solid interdisciplinary grounding, students in the concentration will be permitted to include in the major, courses in sociology and related fields. Advisers will assist the student in the selection of a coherent set of courses in social organization, cultural anthropology, experimental psychology, social methodology, and several aspects of social psychology. Seniors in the concentration may elect graduate seminars.

The Honors Program

The Honors Program is intended to give the student an opportunity to examine selected problems in depth, and subsequently to carry out independent investigation under the direction of a faculty member. During the spring term of their junior year, honors students will take either Psychology 494, a special seminar focusing on classic problems in psychology, or (with their adviser's consent) some other appropriate course at the 400 level or above. In the fall term of their senior year, they will enroll in Psychology

Psychology

B. P. Halpern, chairman; H. A. Alker, A. L. Baldwin, A. W. Boykin, U. Bronfenbrenner, J. Catlin, R. B. Darlington, J. M. Farber, H. M. Feinstein, E. J. Gibson, J. J. Gibson, R. E. Johnston, S. C. Jones, R. Kraut, W. W. Lambert, J. L. Laws, E. H. Lenneberg, H. Levin, D. Levitsky, J. B. Maas, R. D. Mack, L. Meltzer, M. P. Naditch, U. Neisser, D. T. Regan, T. A. Ryan, K. E. Weick, G. W. Wilcox, D. Zoharik.

498-499 Senior Honors Research and Thesis, a two semester program. In the course of the fall semester, each student will select a faculty adviser who will aid in the formulation of a thesis problem and provide guidance and supervision for the research itself. Periodic meetings of the honors group as a whole may be arranged to discuss research-related problems of common interest. Thesis research will normally begin during the fall semester, and will continue in the spring. (Psychology 498-499 may count as a laboratory course in the requirements for psychology majors.) Final honors standing is based upon a written thesis (due on the first Monday in May) and an oral defense of the thesis, as well as upon general academic performance.

Prospective candidates are encouraged to file applications as early as possible, preferably by preregistration in the fall term of their junior year.

Applications may be obtained from, and should be returned to, the department secretary in the Department of Psychology office. For consideration by the Honors Committee, applicants must have, at a minimum, a cumulative grade average of B in all courses taken in psychology.

Distribution Requirement

The distribution requirement in social science is satisfied by any two courses in psychology. (Human Development and Family Studies 115 and Rural Education 110 may be counted.)

101 Introduction to Psychology: the Frontiers of Psychological Inquiry Fall term. Credit four hours. Students may not receive credit for Psychology 101 after having received credit for Education 110. Open to freshmen. Those planning to major in psychology should begin with this course. Three lectures and one demonstration-discussion seminar a week. Lectures, M W F 10:10; seminars to be assigned. J. Maas.

The study of human behavior from the standpoint of the basic processes. Topics include brain functioning, dreaming, intelligence, psychological testing, perception, learning, motivation, emotion, abnormal behavior, and psychiatry. Emphasis is upon contemporary problems confronting psychologists; includes films, guest speakers, and discussion seminars.

Introduction to Psychology: Development of Human Behavior (Human Development and Family Studies 115, College of Human Ecology) Fall term. Credit three hours. Open to freshmen. Graduate students are advised to take this course as Human Development and Family Studies 615. Psychology 101 not a prerequisite. Three lectures and an optional section meeting. Lectures, M W F 11:15; section to be arranged. U. Bronfenbrenner.

A systematic analysis of the forces affecting human development from infancy to adulthood. Attention is focused on the interplay of biological factors, interpersonal relationships, social structure, and cultural values in changing behavior and shaping the individual. Special emphasis is given to the social implications of existing knowledge.

102 Introduction to Psychology: Personality and Social Behavior Spring term. Credit four hours. Open to freshmen. M W F 11:15. Staff.

An examination of personality and social influences on the individual's adjustment to self and environment. Both classic and contemporary viewpoints will be considered and evaluated in the light of empirical evidence.

201 Introduction to Psychology as a Laboratory Science Fall term. Credit three hours. Prerequisite: Psychology 101. Lecture, M W 10:10; laboratory, T or Th 9:05-11, M 3:35-5:30, or W or F 1:25-3:20. D. Zahorik.

Introduction to experimental methods in psychology. Two lectures and one two-hour laboratory period a week. Lectures and laboratory exercises will emphasize basic concepts of measurement, research design, and the relation between theory and experiment. Experiments will be drawn from several areas of psychology, and will be designed to provide experience with some of the most useful psychological research procedures.

205 Perception Fall term. Credit four hours. M W F 9:05 and laboratory to be arranged. J. M. Farber.

Basic concepts and phenomena in the psychology of perception, with emphasis on the stimulus variables and sensory mechanisms involved. Visual and auditory perception will be discussed in detail, with some attention paid to other senses. Weekly laboratory sessions will demonstrate important phenomena.

206 Psychology in Business and Industry (also Hotel Administration 314) Spring term. Credit three hours. Prerequisite: Psychology 101 or Human Development and Family Studies 115, or consent of the instructor. S. Davis.

The principles of psychology applied to industrial and business systems: personnel selection; placement and training; problems of men at work including evaluation, motivation, efficiency, and fatigue; and the social psychology of the work organization.

207 Motivation Theory: Contemporary Approaches and Applications Fall term. Credit four hours. Prerequisite: Psychology 101; Psychology

gy 201 recommended but not required. T Th 10:10-12:05. A. W. Boykin.

A probing and integrative examination of salient models and research in human motivation that have been advanced through experimental psychology. There are three objectives: (1) to provide an evolutionary account of the traditionally dominant motivational model; (2) to present the most current models and research; which concern issues such as curiosity and exploratory behavior, achievement motivation, among others; and (3) to investigate the applications of the various models to actual behavioral settings. Biweekly demonstration/discussion sections will also be conducted.

210 Attention and Memory Spring term. Credit three hours. Prerequisite: Psychology 101 or consent of the instructor. M W F 9:05. U. Neisser.

A study of the relations between the constructive processes of attention and memory, emphasizing recent studies of attentive and preattentive processes in vision, of selective listening, of short-term memory and recording, and of long-term memory and imagery.

212 Historical Roots of Modern Psychology Spring term. Credit four hours. Prerequisite: one course in psychology or consent of the instructor. Hours to be arranged.

A survey of the major historical antecedents of contemporary psychology, including the philosophical tradition (from Aristotle through the Enlightenment), the medical-therapeutic tradition, and the rise of modern science and experimental psychology. Treats the history of psychology through behaviorism, Gestalt psychology, and psychoanalysis.

[215 Linguistics and Psychology] Fall term. Credit three hours. Open to freshmen. M W F 11:15. Not offered in 1974-75.]

Intergroup Relations: Social Conflict and Cooperation (Sociology 264)

280 Social Influence Processes: Attitude and Behavior Change (also Sociology 280) Spring term. Credit three hours. M W F 11:15. D. Regan.

Intended to provide an extensive review of the literature on social influence processes. Beginning with the effects of the mere presence of others on behavior, we will discuss theory and empirical research related to conformity, compliance, imitation and modeling, group decision making, and attitude change. The relationship between attitudes and behavior will be examined in detail, and application will be made to naturally occurring social influence situations.

282 Social Psychology of Women (also Sociology 282 and Women's Studies 282) Spring term. Credit three hours. Prerequisites: Psychology 101 or 102 or Sociology 101. M W F 2:30. J. L. Laws.

Theories on women's personalities, roles, and capacities are compared with current research evidence. Special attention is given to the structure of thinking regarding women in the social sciences. Topics include women in the labor force, sex differences, marriage and the family, socialization of girl children, female sexuality, women's aspiration and achievement, sex roles, the Women's Liberation Movement, and men's liberation.

284 Social-Psychological Theories and Applications (also Sociology 284) Spring term. Credit four hours. Prerequisite: Psychology 102. T Th 10:10 and one hour to be arranged. L. Meltzer.

Emphasis is given to those aspects of personality and social psychology which have led to effective practical applications or which provide reasonable insights into the genesis and/or amelioration of social and personal problems.

285 Personality and Social Systems (also Sociology 285) Fall term. Credit four hours. Prerequisite: one course in either psychology or sociology. M W F 10:10. M. Naditch.

Perspectives will be developed for understanding personality and behavior in a cultural context. A number of theories and conceptual approaches that have been used to understand the relationship between personality and social systems will be critically examined. Some themes in contemporary American culture will be discussed.

303 Learning Spring term. Credit three hours. Prerequisite: Psychology 201 or a 300-level laboratory course in psychology. T Th 10:10. D. Zahorik.

The fundamental conditions and principles of learning, with emphasis on the basic phenomena of classical and operant conditioning. Traditional and contemporary theories of learning will be reviewed, and selected experimental literature will be discussed with special emphasis upon recent developments in the field.

304 Learning Laboratory Spring term. Credit two hours. Prerequisite: Psychology 201 or a 300-level laboratory course in psychology. M T 1:30-4:30. D. Zahorik.

Experiments performed in laboratory illustrate equipment and techniques commonly used in studies of learning. Although some of the experiments involve human subjects, most of the experiments will be performed with rats or pigeons. A proposal for an original experiment will be required, and should include a review of the research literature on which the proposal is based.

305 Visual Perception Spring term. Credit three or four hours depending on whether the student chooses to do an independent laboratory project. Prerequisite: Psychology 205 or permission of the instructor. M W F 11:15. J. Farber.

A detailed examination of theories and processes in visual perception. Topics will include the perception of color, space, and motion; perceptual constancies;

adaptation; pattern perception; and aspects of perceptual learning and development.

[307 Motivation] Fall term. Credit four hours. Prerequisites: Psychology 101 and 201, or 303-304 or consent of the instructor. Lectures, T Th 11:15; laboratory, Th 2:30. Not offered in 1974-75.]

308 Perceptual Learning Fall term. Credit three hours. Prerequisite: Psychology 201 or 305 or permission of the instructor. M W F 11:15. E. Gibson.

Theories of perceptual learning will be compared, experimental methods explored, and the theories evaluated in the light of available data. Students may conduct an experimental project.

309 Development of Perception and Attention Spring term. Credit three hours. Prerequisite: Psychology 201, 305, or 308, or permission of the instructor. M W F 10:10. E. Gibson.

Effects of early rearing conditions, phylogenetic development and imprinting, and development in children of perception of objects, the spatial layout, pictures and symbols. Trends in perceptual development.

[310 Human Learning and Memory] Fall term. Credit three hours. Prerequisite: Psychology 210, 303-304, or consent of the instructor. Not offered in 1974-75.]

313 Cognitive Processes Fall term. Credit three hours. Prerequisite: six hours of psychology or consent of the instructor. T Th 2:30-4:25. A. Baldwin.

Concentrates on higher thought processes such as problem solving, concept formation, thinking, theories of thinking, mathematical models, and computer simulation of thought processes. Students are expected to carry out a small empirical research project on some problem in this area.

[316 Auditory Perception] Spring term. Credit four hours. Prerequisites: two courses in psychology, including Psychology 201 or 305, or consent of the instructor. Not offered in 1974-75.]

322 Physiological Psychology Laboratory (also Biological Sciences 322) Spring term. Credit three hours. May be taken on a S-U basis with consent of the instructor. Prerequisites: Psychology 201, Biological Sciences 321, and consent of the instructor; concurrent or prior registration in Psychology 323. Discussion section, M 7:30-9 p.m. Laboratory, T 1:25-4:25. B. Halpern.

Experiments will be done on physiological aspects of conditioning and memory in vertebrates and invertebrates, interactions between hormones and behavior, and effects of brain lesions on perceptual behavior.

323 Physiological Psychology (also Biological Sciences 323) Spring term. Credit three hours. Prerequisites: Psychology 201 or a 300-level laboratory course in psychology, one year of introductory

biology for majors, or its equivalent, and Chemistry 103-104 or its equivalent. T Th 9:05. B. Halpern.

A selective examination of neural, endocrine, and biochemical functions related to emotion, memory, learning, and sleep.

[324 Existential Psychology] Fall term. Credit four hours. Prerequisite: upperclass standing or consent of instructor. Not offered in 1974-75.]

325 Introductory Psychopathology Fall term. Credit four hours. Prerequisite: three hours in psychology. M W 1:25-3:20. R. Mack.

An introduction to the study of the various forms of psychopathology especially as they relate to the experiences of human growth and development. Presents a description of the major syndromes, investigations, theories of etiology, and approaches to treatment. Provides students with an opportunity to explore their own life experiences and the life experiences of others as they play a role in psychological health, growth, disturbance, and self-defeat.

326 Comparative Psychology Fall term. Credit four hours. Prerequisite: Psychology 201 or 205, or Biological Sciences 101-102, or consent of the instructor. M W F 10:10, laboratory Th 2-5 or 7-10. R. Johnston.

Centers on communication and social behavior of animals. Included will be topics such as the nature and function of animal signals, the development of social behavior in individuals, courtship, mating, parental behavior, fighting, and the evolution of communication systems and social organization. The laboratory is an integral part of the course and provides an opportunity to observe and describe the behavior of several different species and to learn several methods of recording behavior for quantitative analysis.

327 Continuing Fieldwork in Psychopathology and the Helping Relationship Either term. Credit two hours per semester, not to exceed a total of ten hours. Prerequisites: Psychology 325 or 426 and permission of the instructor.

This course is designed to allow students who have begun fieldwork as part of Psychology 325 or Psychology 426 to continue their field placements, under supervision and for academic credit. In addition to the fieldwork there will be a weekly seminar meeting to discuss the assigned readings and issues pertaining to the various field placements.

328 Behavioral Maturation (also Biological Sciences 328) Fall term. Credit three hours. Prerequisites: one year of college biology, one physiological psychology course or equivalent. Enrollment limited to fifty students. MF 12:20. E. Lenneberg.

Emergence of behavior will be studied in the light of developmental biology, neuroembryology and morphogenesis, physical maturation of the brain, transformation, and allometry.

345 Afro-American Perspectives in Experimental Psychology (also Africana Studies 345) Spring term. Credit three or four hours. Offered in alternate years. Enrollment limited to forty students. Prerequisites: sophomore status, six hours in the behavioral sciences and permission of instructor. T Th 2:30-4:25. A. W. Boykin.

A critical examination of a representative sample of philosophical presuppositions, methodologies, data, and theories in experimental psychology that pertain directly to black Americans. Emphasis will be placed on (1) sensitizing people to the issues as they are viewed from a black perspective and (2) developing research strategies consistent with this perspective. The viability and feasibility of an independent black psychology will be seriously entertained. The course will combine student presentations, instructor's lectures, and guest speakers. An optional one hour a week problem-solving session in research design and methodology will also be offered.

350 Statistics and Research Design Fall term. Credit four hours. Prerequisite: a course in the behavioral sciences. M W F 10:10. Preliminary examinations will be held from 7:30-10 p.m. on October 1 and November 14. R. Darlington.

Devoted about equally to elementary applied statistics—both estimation and hypothesis testing—through two-way analysis of variance, and to general problems in the design and analysis of research projects.

[355 Man and Computer] Fall term. Credit three hours. Prerequisites: six hours of psychology and Computer Sciences 201, or consent of instructor. T Th 10:10 with additional hour to be arranged. G. Wilcox. Not offered in 1974-75.]

361 Drugs and Behavior Fall term. Credit three hours. Prerequisites: Biological Sciences 101-102 and at least two courses in psychology, senior standing. M W F 11:15. D. Levitsky.

The course is intended as an introduction to the techniques and problems in experimental psychopharmacology as they relate to psychoactive drugs as well as the behavioral, biochemical, and physiological effects of these drugs. Social and legal issues relating to the use of drugs in human societies will also be treated.

[372 Psychology of Play and Sport] Spring term. Credit three hours. Prerequisites: Psychology 101 and either one additional psychology course or a course in human development and family studies, anthropology, or sociology, and consent of instructor. Not offered in 1974-75.]

380 Role Theory (also Sociology 380) Spring term. Credit four hours. Prerequisites: Sociology 101 and Psychology 101 or 102 or consent of the instructor. M W F 11:15. J. L. Laws.

Traditional perspectives on social roles will be integrated with current research on specific roles. Topics include role as a concept linking society and individ-

ual; symbolic interaction; socialization processes; role-taking; self identity; occupational roles; sex roles; role networks. Methods of studying social roles will be examined. Some applications of role theory will be examined, most notably in experimental methodology and psychodrama.

381 Social Psychology (also Sociology 381) Fall term. Credit four hours. Prerequisites: three hours of psychology and three hours of sociology. M W F 11:15. R. Kraut.

Analysis of the history, concepts, methods, and theories used to describe and conceptualize the ways in which people react to one another in social settings and in the laboratory. Among topics to be covered are socialization, attitude change, communication, deviance, interpersonal influence, impression formation, leadership, and propaganda.

[383 Social Psychological Aspects of Social Change (also Sociology 383)] Spring term. Credit four hours. Prerequisites: one course in either psychology or sociology. M W F 10:10. M. Naditch. Not offered in 1974-75.]

385 Theories of Personality (also Sociology 385) Spring term. Credit four hours. Prerequisite: Psychology 101 or 102, or consent of the instructor. Some sociology or anthropology also helpful. M W F 12:20. W. Lambert.

A critical survey of modern theories of personality. An analysis of the relation of personality theory and related research to the social sciences, psychology, and literature. The emphasis is upon "normal" personality, and upon clarifying hypotheses for systematic empirical testing.

[387 Psychological Aspects of Political Behavior (also Sociology 387)] Fall term. Credit four hours. Prerequisites: junior standing and a course in social or personality psychology, or consent of the instructor. M W F 9:05. H. Alker. Not offered in 1974-75].

401 Psychological Testing Fall term. Credit four hours. Prerequisites: six hours in psychology and a course in elementary statistics. T Th 11:15-1:10. R. Darlington.

Emphasis is on logical and mathematical problems in the interpretation, evaluation, and construction of tests. No training in administering tests.

415 Topics in Human Memory Fall term. Credit four hours. Prerequisite: Psychology 210 or 310. T Th 2:30-4:00. U. Neisser.

Consideration of advanced topics in human memory with emphasis on current theoretical issues. Subject-controlled processing strategies, the nature of mnemonic representation, forgetting, and retrieval will be covered. Special topic in fall 1974 will be memory in culture.

416 Psychology of Language Fall term. Credit four hours. Prerequisite: Psychology 215, 310 or 313, or Linguistics 101-102, or consent of the instructor. M W F 1:25. J. Catlin.

An advanced treatment of the nature of the human capacity for language. Topics will include the nature of linguistic theory, semantics and reference, language universals, language acquisition, the relationship of language to other cognitive processes, speech perception and production, the embodiment of language in the brain, and comparative primate vocalization and communication.

420 Principles of Neurobiology Laboratory (also Biological Sciences 420) Spring term. Credit four hours. Prerequisite: Biological Sciences 326, or 427, or 428 (may be taken concurrently) or permission of the instructors. Enrollment limited to thirty-six students. Laboratory M T W or Th 1:25-4:25. Each student to sign up for two sections. Discussion section to be arranged. B. Halpern, T. Podleski, D. Tapper, and staff.

Laboratory practice with neurobiological preparations and experiments, designed to teach the students the techniques, experimental designs, and research strategies used to study biophysical and biochemical properties of excitable membranes, sensory receptors, and the central nervous system transformation of afferent activity, and the characteristic composition and metabolism of neural tissue. The course will be divided into an initial segment (approximately eight weeks) in which fundamental techniques will be learned and used in experiments by all students, and a second segment (approximately eight weeks) in which students will learn and use more specialized techniques for experiments in either elementary neurophysiology of excitable membranes, or sensory function, or neurochemistry.

424 Brain and Behavior (also Biological Sciences 424) Fall term. Credit three hours. Prerequisite: one year of college biology, one physiological psychology course or equivalent. Enrollment limited to forty students. Th 2:30-4:25. E. Lenneberg.

A theoretical introduction to human neurology. This survey of clinical symptoms and their etiology is designed to enable students to make use of disease for research purposes.

426 Seminar and Practicum in Psychopathology Spring term. Credit four hours. Open to majors in psychology who have taken Psychology 325, junior or senior status, and consent of the instructor. Seminar T 2:30-5 and four to eight hours for fieldwork, times to be arranged. R. Mack.

Designed as a fieldwork and seminar course for advanced students who have mastered the fundamental concepts of personality theory and psychopathology. Provides an opportunity for the student to explore in depth the various forms of psychopathology, their etiology and treatment, to discuss and evaluate these in seminar, and to work with mental health profes-

sionals and those who seek their help in several mental health settings.

427 Sensory Function (also Biological Sciences 427) Fall term. Credit three hours. Prerequisite: Biological Sciences 321 or equivalent. Lectures, M W F 11:15. Discussion period to be arranged. B. P. Halpern and D. N. Tapper.

Sensory receptors and the central nervous system transformation of afferent activity will be considered in relation to human and animal psychophysical data and to the adaptive significance of behavior. The receptors will be examined in terms of anatomy, biochemistry, biophysics of transduction, and the central nervous system control of peripheral input. Information and signal detection theories will be applied.

[440 Sleep and Dreaming] Spring term. Credit four hours. Prerequisites: advanced undergraduate or graduate standing and consent of the instructor. Not offered in 1974-75.]

442 Physiological Mechanisms of Animal Social Behavior Spring term. Credit four hours. Prerequisites: course experience in both psychology and behavior, Psychology 323 and 326 or Biological Sciences 320, or permission of the instructor. T Th 10:10-12:05. R. Johnston.

This course attempts to integrate physiological and behavior levels of analysis. It concentrates on the ways in which hormones affect behavior and behavior affects hormones. Species similarities and differences will be evaluated from a functional and evolutionary point of view.

[444 Theories of Human Behavior] Spring term. Credit four hours. Prerequisite: senior or graduate status. Not offered in 1974-75.]

[445 Research Excursions in Black Psychology] Spring term. Credit four hours. Prerequisites: Psychology 345, or twenty hours of psychology, or graduate standing and permission of the instructor. Offered in alternate years. Not offered in 1974-75.]

[464 Motivation and Human Learning] Spring term. Credit four hours. Offered in alternate years. Prerequisites: Psychology 303-304, 307, or 310, or consent of the instructor. Not offered in 1974-75.]

[465 Mathematical Behavior Theory] Fall term. Credit four hours. Prerequisite: one year of calculus. Not offered in 1974-75.]

467 Seminar: the Examined Self—a Psychohistorical View Spring term. Credit four hours. Prerequisite: consent of the instructor. M 2:30-4:25 and additional hours to be arranged. H. Feinstein.

A study of American biographical literature which provides material for analysis of changing views of selfhood in historical context. The texts will be studied as illustrating both the ideology of the period and as samples of persistent problems of self-

development. A second focus will be on personal involvement with the text.

[469 Seminar: Psychotherapy, Its Nature and Influence] Spring term. Credit four hours. Prerequisites: nine hours of psychology including Psychology 325 or equivalent, and consent of the instructor before preregistration. Enrollment strictly limited. Not offered in 1974-75.]

[471 Statistical Methods in Psychology] Credit four hours. Prerequisite: two courses in psychology or consent of the instructor. Graduate students planning to take Psychology 472 are asked to register for Psychology 350 in the fall term. Not offered in 1974-75.]

472 Statistical Methods in Psychology Spring term. Credit four hours. Prerequisite: Psychology 350 or 471 or consent of the instructor. M W F 1:25. T. Ryan.

Analysis of variance and treatment of complex experimental designs in psychology; individual comparison within complex designs; linear, curvilinear, and multiple regression and correlation.

[475 Analysis of Nonexperimental Data] Fall term. Credit four hours. Offered in alternate years. Prerequisite: Psychology 350 or equivalent. Not offered in 1974-75.]

480 Attitude Theory (also Sociology 480) Fall term. Credit four hours. Prerequisite: a course in social psychology or consent of the instructor. M W F 10:10. L. Meltzer.

A survey of theory and research on attitudes and attitude change. The cognitive consistency approaches (balance, dissonance, congruity) will be emphasized.

481 Advanced Social Psychology (also Sociology 481) Fall term. Credit four hours. Prerequisite: a course in social psychology or consent of the instructor. T Th 10:10-11:25. D. Regan.

Selected topics in social psychology are examined in depth, with a heavy emphasis on experimental research. Readings consist for the most part of original research reports. Topics discussed may include some of the following: social comparison theory, social and cognitive determinants of the emotions, cognitive dissonance, attribution processes, interpersonal attraction, aggression, altruism, and compliance, and research methods in social psychology.

483 Social Interaction (also Sociology 483) Spring term. Credit four hours. Prerequisites: three hours in psychology and three hours in sociology. Enrollment limited to fifteen students. Lectures, T Th 1:25. Laboratory, T 2:30-4:00. D. Hayes.

A field and laboratory course dealing with the major conceptions of the organization and dynamics of face-to-face interaction. Contemporary models and research are emphasized. Student projects are central to this course.

[485 Individual Differences (also Sociology 485)] Spring term. Credit four hours. Prerequisites: seven hours of psychology and junior or senior standing, or consent of the instructor. M W F 2:30. Not offered in 1974-75.]

[486 Socialization Processes and Social Context (also Sociology 486)] Spring term. Credit four hours. Prerequisite: senior class or graduate student standing and consent of the instructor. Enrollment limited to twenty students. T 1:25-3:20. U. Bronfenbrenner. Not offered in 1974-75.]

487 Selected Problems in Psychopathology and Society (also Sociology 487) Spring term. Credit four hours. Prerequisites: one course in personality or psychopathology and one course in statistics. M W F 10:10. M. Naditch.

The course will focus on one or two select topics related to personality, situational and social structural aspects of psychopathology and maladaptive behavior. These topics will be in the general area of sociocultural stress, social psychiatry, and specific problem areas such as alcoholism and drugs.

489 Seminar: Selected Topics in Social Psychology (also Sociology 488) Fall term. Credit four hours. Prerequisites: consent of the instructor and three hours of psychology and three hours of social psychology or sociology. T 2:30-4:25. S. Jones.

The seminar fall 1974 will be devoted to discussions of problems of "schooling" in general and postsecondary education in particular. Special emphasis will be placed on analysis of these problems in the light of current research and theory in personality and social psychology.

[492 Psychology and Ethics] Fall term. Credit four hours. Prerequisite: permission of the instructor. Not offered in 1974-75.]

494 Junior Honors Seminar Spring term. Credit four hours. Prerequisite: admission to the departmental Honors Program. Hours to be arranged. Staff.

One or more fundamental issues in psychology will be examined in depth and from many points of view.

496 Supervised Study Either term. Credit two hours. Staff.

497 Supervised Study Either term. Credit four hours. Staff.

498 Senior Honors Research and Thesis Fall term. Credit four hours. Prerequisite: admission to the departmental Honors Program. Hours to be arranged. Staff.

499 Senior Honors Research and Thesis Spring term. Credit four hours. Prerequisite: admission to the departmental Honors Program. Hours to be arranged. Staff.

Neurobiology and Behavior

Recommended courses in neurobiology and behavior in other departments are Biological Sciences 321, 325, 326, 421, 423, 426, 428, 523, 524, 525 and 526, also Theoretical and Applied Mechanics 1801, 1892.

Graduate Seminars

Primarily for graduate students, but, with the consent of the instructor, graduate courses may be taken by qualified undergraduates. Approximately five graduate courses or seminars will be offered each term, the selection to be determined by the needs of the students.

A listing and description of graduate seminars is available at the beginning of each semester. Please contact the Department of Psychology office. Except where indicated, the following courses may be offered either term. Credit four hours.

- 511 Perception
- 513 Learning
- 515 Motivation
- 517 Language and Thinking
- 519 Cognition
- 521 Psychobiology
- 523 Physiological Psychology
- 525 Mathematical Psychology
- 531 History of Psychology
- 535 Animal Behavior
- 541 Statistical Methods
- 543 Psychological Tests
- 545 Methods in Social Psychology
- 547 Methods of Child Study
- 561 Human Development and Behavior
- 575 Personality
- 577 Industrial Psychology
- 580 Experimental Social Psychology (also Sociology 580) D. Regan.

584 Proseminar in Social Psychology and Personality (also Sociology 584) Spring term. Prerequisites: graduate major in social psychology or minor in social psychology with consent of the instructor. M Th 4-5:45.

585 Social Structure and Personality (also Sociology 585) Fall term. Prerequisite: graduate student standing or consent of the instructor. W 3:35-5:30. B. Rosen.

[586 Interpersonal Interaction (also Sociology 586) Not offered in 1974-75.]

591 Educational Psychology

595 The Teaching of Psychology

682 Social Psychology (also Sociology 682) Fall term. Prerequisite: graduate standing or consent of the instructor. Hours to be arranged. W. Lambert.

683 Seminar in Social Interaction (also Sociology 683) Spring term. Prerequisite: consent of the instructor. Hours to be arranged. D. Hayes.

[684 Seminar in Feminine Identity (also Sociology 684) Not offered in 1974-75.]

690 Nutrition and Behavior (also Graduate School of Nutrition 690) Spring term. Credit three hours. Prerequisite: consent of the instructor. D. Levitsky.

Romance Studies

The Department of Romance Studies offers courses in French language and literature, Italian language and literature, and Spanish language and literature. For complete course listing and for details of the major programs in French, Italian, and Spanish, see the appropriate headings in the section Modern Foreign Languages and Literatures.

Russian

For complete course listings and for details of the major, see the heading Russian in the section Modern Foreign Languages and Literatures.

Semitic Languages and Literatures

B. Netanyahu, chairman; C. M. Carmichael, I. Rabinowitz.

The Department of Semitic Languages and Literatures offers Cornell undergraduates access to the thought and self-expression of the cultures which produced Judaism, Christianity, and Islam, and which today help to define and characterize the many mil-

lions of people who live in countries that comprise the region we call the Middle East. Hebrew, Aramaic, and Arabic are not only the languages of the Old Testament and of the Koran, but of literatures of intrinsic merit and interest whose influence has permeated and enriched the literatures of many other civilizations, both Eastern and Western, ancient and modern, including American. Studies pursued in this Department will, therefore, be found of lasting benefit and utility to all whose career interests involve the Middle East or Africa, and to all whose interest in religion and the humanities is more than merely casual. Students who elect, as their major study, one of the fields of Semitic languages and literatures should consult the Department with regard to their special requirements.

Distribution Requirement

The distribution requirement in humanities is satisfied in Semitic studies by any two literature courses (including the course in biblical law), or any two philosophy courses, at the 200 level or above; or by any two language courses at the 300 level or above.

Hebrew

100-101 Elementary Hebrew Language 100 fall term only; 101 spring term only. Credit five hours a term. Prerequisite: for 101, 100 or consent of the instructor. Oral and literary approaches combined. Section 1, M-F 10:10; section 2, M-F 11:15; section 3, M-F 1:25. Staff.

102-103 Elementary Classical Hebrew 102 fall term only; 103 spring term only. Credit three hours a term. Prerequisite: for 103, 102 or consent of the instructor. M W F 1:25. I. Rabinowitz.

An introduction to the language of the Hebrew Bible.

200-201 Intermediate Hebrew Language 200 fall term only; 201 spring term only. Credit five hours a term. Prerequisite: for 200, one year of college Hebrew or consent of the instructor; for 201, 200 or consent of the instructor. Section 1, M-F 10:10; section 2, M-F 11:15. Staff.

300-301 Advanced Hebrew Language 300 fall term only; 301 spring term only. Credit four hours a term. Prerequisite: for 301, 300 or consent of the instructor. M W F 11:15. Staff.

Readings of texts from biblical, postbiblical, and modern Hebrew literature.

302 Independent Study Either term. Credit two hours a term. For qualified students. Staff.

303 Independent Study Either term. Credit four hours a term. For qualified students. Staff.

Arabic

110-111 Elementary Arabic 110 fall term only; 111 spring term only. Credit six hours a term. Prerequisite: for 111, 110 or consent of the instructor.

M-F 12:20. Staff.

210-211 Intermediate Arabic 210 fall term only; 211 spring term only. Credit three hours a term. Prerequisite: for 210, one year of Arabic or consent of the instructor; for 211, 210 or consent of the instructor. Hours to be arranged. Staff.

310-311 Advanced Arabic 310 fall term only; 311 spring term only. Credit four hours a term. Prerequisite: for 310, consent of the instructor; for 311, 310 or consent of the instructor. Hours to be arranged. Staff.

310: readings of classical Arabic texts, including parts of the Koran.

311: reading of postclassical and modern Arabic texts.

Biblical Literature

230-231 Readings in the Hebrew Bible 230 fall term only; 231 spring term only. Credit three hours a term. Prerequisite: for 230, one year of college Hebrew or consent of the instructor; for 231, 230 or consent of the instructor. Hours to be arranged. I. Rabinowitz.

First term, classical Hebrew prose; second term, classical Hebrew poetry.

330-331 The Literature of Ancient Israel (also Comparative Literature 323-324) 330 fall term only; 331 spring term only. Credit four hours a term. First term not prerequisite to the second. Not open to freshmen. M W F 9:05. I. Rabinowitz.

330: the Old Testament. 331: several of the later books of the Old Testament, the Apocrypha, and the Dead Sea (Qumran) Scrolls. The ancient Israelite beliefs and cultural assumptions needed to comprehend the texts as literature will be discussed. All readings in English.

333 Biblical Law Spring term. Credit four hours. Not open to freshmen. M W F 11:15. C. Carmichael.

A study of biblical laws, proverbs, and narratives against the background of ancient Near Eastern law and custom.

334 Studies in Christian Origins Spring term. Credit four hours. Not open to freshmen. T Th 11:15, and one other hour to be arranged. C. Carmichael.

The religious and moral ideas, customs, and conventions found in the New Testament will be traced in the Old Testament and other Jewish writings.

General Judaic Studies

240 What Is Judaism? Fall term. Credit three hours. T 3:35-4:25, Th 2:30-4:10. B. Netanyahu.

A general introduction to the teachings of Judaism as they evolved through the ages, up to the end of the second century A.D., with special attention to the

rise and development of major ethical and social concepts. The basic differences between Judaism and Christianity in the period of Jesus and Paul will form a major topic of discussion. Also designed to acquaint students with the range and structure of Jewish studies.

341-342 A Synoptic Course of the History of the Jewish People (614-1973) 341 fall term only; 342 spring term only. Credit four hours a term. First term not prerequisite to the second. T 1:25-3:05, Th 1:25-2:15. B. Netanyahu.

A general survey of the major political, social, and intellectual developments in Jewish history from the close of the ancient era to the present time. 341: from the last Jewish struggle against Roman rule in Palestine (614 A.D.) to the expulsion of the Jews from Spain (1492). 342: from the beginning of the modern era (1492) to the October War, 1973.

Modern Hebrew Literature

260-261 Modern Hebrew Literature (from 1880 to 1920) 260 fall term only; 261 spring term only. Credit four hours a term. First term not prerequisite to the second. M W F 9:05. S. Nash.

A survey of the modern Renaissance period in Hebrew letters mirroring the ferment in Jewish life produced by the idea of national rebirth. The complex background of anti-Semitism, socialism, and Jewish mystical-Messianic longings will be examined in studying such literary giants as Bialik and Tchernichowsky (in poetry) and Ahad Haam and Berdyczewski (in prose), who virtually redefined the new Hebraic culture and recreated the ethos of Judaism.

360-361 Seminar in Contemporary Hebrew Literature 360 fall term only; 361 spring term only. Credit three hours a term. First term not prerequisite to the second. T Th 9:05. S. Nash.

An analytical study of some major works representing the principal genres of Hebrew literature in the Renaissance period: the essay (Ahad Haam), poetry (Bialik), and the novel (Brenner). Materials to be discussed are available in English translation.

Sociology

L. Reissman, chairman; H. A. Alker, R. Avery, S. Caldwell, P. Chi, R. K. Goldsen, G. Gordon, D. P. Hayes, J. A. Kahl, R. Kraut, W. W. Lambert, J. L. Laws, R. McGinnis, L. Meltzer, M. P. Naditch, A. Paris, B. C. Rosen, C. A. Sheingold, G. F. Streib, J. M. Stycos, W. F. Whyte, R. M. Williams, Jr.

Sociology Major

General Sociology

Students majoring in sociology have considerable

flexibility in prerequisites and in their major programs. Students thinking of majoring are advised to consult with the department early in their careers, and well in advance of the deadline for selecting a major. By consulting early, students may select prerequisites appropriate to their major interests and career goals.

Prerequisites: Sociology 101 and one 200-level course in sociology or equivalents are required. In addition, students should present one course from the biosciences or from areas with a logical or symbolic content relevant to the social sciences. Among appropriate courses are: Mathematics 107-108 or 111; Philosophy 231; Linguistics 101-102; Biological Science 101-102 or 109-110; and Computer Science 201 or 202. Other courses may be recommended by a departmental adviser. Minimum grade requirements are an average of C in all subjects and an average of C+ in courses offered as prerequisites.

Upperclass courses: students accepted in the major must complete thirty-two hours of courses at the 300 level or higher, chosen in consultation with, and with the consent of their advisers. Realizing the variety of other academic interests and career intentions to which sociology is relevant (for example, law, public service, medicine, and government) and which a major in sociology should serve, the Department wishes to allow students and their advisers freedom to construct an appropriate sequence of courses. Students should, however, include among the thirty-two hours one course in the techniques of research (for example, Sociology 321, 325, 462 or 470) and one course in theory (for example, Sociology 402, 385, or 441). For students intending to pursue graduate studies, additional courses in theory and methods may be recommended.

Senior year requirement: all students will either (1) include within their thirty-two hours of advanced courses a graduate seminar during their senior year, writing for the seminar a comprehensive term paper, or (2) present to the Department during their last term of residence a substantial essay using empirical or library research.

Concentrations

Within the general major, concentrations are available in social psychology, urban studies, and population studies. The student in a concentration generally takes from within the specialty area three or more courses at the 300 to 500 level and the graduate seminar (if this form of fulfilling the senior requirement is selected). Related areas of study are also suggested for each concentration.

Concentration in Social Psychology. Sponsored jointly with the Department of Psychology. Most of the social psychology courses may be taken for credit in either sociology or psychology. Related specialties or areas which may be recommended to the student are social organization, social methodology, experimental psychology, and cultural anthropology. A number of seminars (e.g., Sociology 580, 584,

585, 682, 683) will fulfill the senior seminar requirement.

Concentration In Urban Studies. In this strongly interdisciplinary concentration related courses may be recommended from population, social psychology, economics, government, or planning. Many courses are within the College, but the student will be urged also to consider courses in the Colleges of Architecture, Art, and Planning; Engineering; Human Ecology; or Industrial and Labor Relations. Sociology 472 or 671 will fulfill the senior year requirement.

Concentration In Population Studies. Courses covering the basic demographic concerns of fertility, mortality and morbidity, migration, urbanization and population policy, and techniques of analysis are primarily within the Department, but students may be encouraged to take related courses in economics, planning, and international studies. There are several courses at the 500 level which meet the senior year requirement.

Social Relations Major

The major in social relations, which is sponsored jointly by the Departments of Sociology and Anthropology, provides the student with basic competence in cultural anthropology, social psychology, and sociology, while giving particular emphasis to the common methods of research in these disciplines. Students electing the major are expected to obtain a grasp of the common interests and evidence of these disciplines as well as knowledge of their unique insights in attempting to develop generalizations regarding man in society. The students' work is integrated in the senior year when they take the social relations seminar in which they are expected to interrelate aspects of the theory and data of the three disciplines.

Prerequisites to the Major. The candidate must apply to the Committee on Admission to the Social Relations Major, offering the following: (a) either Anthropology 103 or Sociology 101; (b) either Psychology 101 or 102, or Human Development and Family Studies 115 or Sociology 280; and (c) either Industrial and Labor Relations 210 or equivalent.

The Major. The major calls for a minimum of thirty-six hours of course work as follows: (a) three pairs or other combinations of related courses at the 300 level or above, to be selected in consultation with the major adviser. These six courses must include two courses from each of the following disciplines: anthropology, social psychology, sociology; (b) at least one course in methods, to be selected from the following: anthropological methods, techniques of experimentation (psychology), methods in sociology, advanced psychological statistics, the philosophy of science or of social science, advanced statistics (such as Industrial and Labor Relations 311); (c) at least one course in theory which is related to social relations; (d) the senior seminar in social relations (Sociology 497 or Anthropology 495).

A list of the courses which may be used to satisfy the requirements for a major in social relations is available from any of the major advisers.

Students seeking admission to the program in social relations should apply to the Social Relations Committee, 323 Uris Hall.

The Honors Program

For admission to the Honors Program, students should file application with the Department during the second semester of their junior year. Honors candidates must have a general average of at least B- and an average in departmental courses of at least B, or show exceptional promise.

Distribution Requirement

The distribution requirement in social sciences is satisfied in sociology by any two courses in the Department of Sociology.

Seminars

Seminars may be taken by qualified undergraduates with the consent of the instructor, except as otherwise noted in course listings.

Participation in Research

Participation in sociological research may be required as part of course work for any student when the instructor considers that it will be to the student's educational advantage.

101 The Social Condition Fall term. Credit three hours. Lectures M W 11:15 and recitations to be arranged. S. Caldwell, A. Paris, L. Reissman, and C. Sheingold.

An analysis of major perspectives, theories, and methods in contemporary sociology in the context of selected problem areas of importance for American society.

230 Population Problems Spring term. Credit three hours. M W F 12:20. J. M. Stycos.

The practical and scientific significance of population growth and composition. Fertility, migration, and mortality in relation to social and cultural factors and in relation to questions of population policy. National and international data will receive approximately equal emphasis.

248 Politics In Society Spring term. Credit three hours. Offered alternate years. M W F 9:05. C. Sheingold.

An examination of the relations between the social and political structure with particular emphasis upon the United States. Topics such as party systems, vot-

ing behavior, social movements, and power distribution will be discussed in this context.

262 Public Opinion Fall term. Credit three hours (four credit option is available). T Th 11:15 and one hour to be arranged. R. K. Golden.

Analysis of television, radio, and the press as institutions—how they work and how they create the new cultural habitat within which public opinion is cultivated, standardized, and made manipulable.

264 Intergroup Relations: Social Conflict and Cooperation Spring term. Credit three hours. Prerequisite: Sociology 101 or consent of the instructor. T Th 11:15 and one hour to be arranged. A. Paris.

Analysis of relations among ethnic, racial, and religious groups. Sources of collective conflict and cooperation. Relation of conflict to social order and social change. Causes and consequences of prejudice and discrimination, as well as of cooperation and accommodation are reviewed. Social and political movements stressing militance or intolerance, and efforts to resolve intergroup conflict, will be examined with special attention to current developments in the United States. Strategies of confrontation and conflict resolution.

272 Urban Society Spring term. Credit three hours (four hour credit option is available). M W F 10:10. L. Reissman.

The sociological analysis of urbanism and urbanization. Alternative explanations of industrial urban development will be assessed, including ecology-demography, modernization, dependency, and other theories of urban change. Trends in the United States and in other countries will be examined, using such information as a basis for considering urban problems and the urban future. Discussion sections are organized around specific topics.

280 Social Influence Processes: Attitude and Behavior Change (also Psychology 280) Spring term. Credit three hours. M W F 11:15. D. Regan.

Intended to provide an extensive review of the literature on social influence processes, beginning with the effects of the mere presence of others on behavior; discussions of the theory and empirical research related to conformity, compliance, imitation and modeling, group decision making, and attitude change. The relationship between attitudes and behavior will be examined in detail, and application will be made to naturally occurring social influence situations.

282 Social Psychology of Women (also Psychology 282 and Women's Studies 282)

Spring term. Credit three hours. Prerequisite: Sociology 101 or Psychology 101 or 102. M W F 2:30. J. L. Laws.

Theories on women's personalities, roles, and capacities are compared with current research evidence. Special attention is given to the structure of thinking regarding women in the social sciences. Topics include women in the labor force, marriage and the family, socialization of girl children, sex differences,

female sexuality, women's aspirations and achievement, sex roles, the Women's Liberation Movement and men's liberation.

284 Social-Psychological Theories and Applications (also Psychology 284) Spring term. Credit four hours. Prerequisite: Psychology 102. T Th 10:10 and one hour to be arranged. L. Meltzer.

Emphasis is given to those aspects of personality and social psychology which have led to effective practical applications or which provide reasonable insights into the genesis and/or amelioration of social and personal problems.

285 Personality and Social Systems (also Psychology 285) Fall term. Credit four hours. Prerequisite: one course in psychology or sociology. M W F 10:10. M. Naditch.

Perspectives will be developed for understanding personality and behavior in a cultural context. A number of theories and conceptual approaches that have been used to understand the relationship between personality and social systems will be critically examined. Some themes in contemporary American culture will be discussed.

321 Techniques of Sociological Research Fall term. Credit four hours. Prerequisite: a course in sociology. T Th 10:10 and laboratory time to be arranged. D. Hayes.

Research design and the operational side of laboratory methodology, with a series of field and laboratory projects. Students will carry out several studies from planning to analysis stages.

325 Analysis of Sociological Data Spring term. Credit four hours. T Th 10:10 and one hour to be arranged. S. Caldwell.

A first course in statistical analysis of data for students in the social sciences. Begins with two variable tabular analysis and ends with an introduction to regression and path analysis. Focuses on using data to test multivariate causal hypotheses.

330 Population and the Environment Fall term. Credit four hours. T Th 10:10-12:00. R. Avery.

Course will concentrate on the question of the existence of environmental problems related to population variables. Emphasis will be on the assumptions, framework of analysis and underlying data used in theories relating population and the environment. National and international studies will be covered.

Law and Social Science (Government 324-325)

343 The Family Fall term. Credit four hours. M W F 9:05. G. Streib.

The structure and function of the nuclear and extended family in the West and cross-culturally. Specific areas examined will include biological foundations, incest taboos, mate selection, illegitimacy, sex and sexual controls, internal familial

processes, disorganization, differential class patterns, the family, and social change.

345 Inequality in America Spring term. Credit four hours. Prerequisite: a course in the social sciences. M W F 1:25. J. Kahl.

Recent trends in the unequal distribution of income, occupational rank and educational attainment in the United States; inheritance of riches and inheritance of poverty; importance of ethnic membership; sex differences; relative influence of technological and market causes of these trends compared to deliberate attempts by government policy to alter them; evaluation of the "war on poverty."

346 Race, Class and Power Fall term. Credit four hours. Prerequisite: Sociology 101 or equivalent. T Th 10:10 and one hour to be arranged. A. Paris.

An examination of race and ethnicity from the perspectives of power and interest group politics. Attention will be focused on groups (ethnic, social, and otherwise) in the urban context. J. M. Furnivall's Plural Society thesis will be examined for its domestic applicability. Some attention will also be given to rural populations, e.g., Appalachian poor whites and Chicanos in the Southwest.

[350 Comparative Social Change Fall term. Credit four hours. Prerequisite: a course in the social sciences. T Th 10:10-12. B. C. Rosen. Not offered in 1974-75.]

[354 Religions and Secularism in Western Society Spring term. Credit four hours. Prerequisite: Sociology 101 or consent of the instructor. M W F 9:05. G. Streib. Not offered in 1974-75.]

[363 Party Systems and Social Groups: the Structure of American Politics Spring term. Credit four hours. Offered in alternate years. Prerequisite: a course in sociology or American political history or consent of the instructor. M W F 9:05. C. Sheingold. Not offered in 1974-75.]

367 After the Revolution: Mexico and Cuba Fall term. Credit four hours. Prerequisite: two courses in the social sciences. M W F 1:25. J. Kahl.

A comparison of the economic, political, and social development of Mexico and Cuba following their revolutions. Assigned readings will be in English.

368 Contemporary Brazil (also Economics 368 and Government 368) Spring term. Credit four hours. Prerequisite: two courses in the social sciences. T Th 1:25-3:00. T. E. Davis.

A study of the style of development in economy, polity, and society followed by contemporary Brazil, and an analysis of the contradictions that led to the military coup of 1964 and its aftermath; some comparisons with other Latin American countries will be made. Assigned readings will be in English.

378 Economics, Population, and Development (also Economics 378) Spring term. Credit four hours. M W F 10:10. M. Haines.

An introduction to the economic aspects of population and the interaction between population change and economic change. Particular attention will be paid to economic views of fertility, mortality, and migration and to the impact of population growth on economic growth, development, and modernization.

380 Role Theory (also Psychology 380) Spring term. Credit four hours. Prerequisites: Sociology 101 and Psychology 101 or 102 or consent of the instructor. M W F 11:15. J. L. Laws.

Traditional perspectives on social roles will be integrated with current research on specific roles. Topics include role as a concept linking society and individual; symbolic interaction; socialization processes; role taking; self identity; occupational roles; sex roles; role networks. Methods of studying social roles will be examined. Some applications of role theory will be examined, most notably in experimental methodology and psychodrama.

381 Social Psychology (also Psychology 381) Fall term. Credit four hours. Prerequisites: three hours of psychology and three hours of sociology. M W F 11:15. R. Kraut.

Analysis of the history, concepts, methods, and theories used to describe and conceptualize the ways in which people react to one another in social settings and in the laboratory. Among topics to be covered are socialization, attitude change, communication, deviance, interpersonal influence, impression formation, leadership, and propaganda.

[383 Social Psychological Aspects of Social Change (also Psychology 383) Spring term. Credit four hours. Prerequisite: one course in psychology or sociology. M W F 10:10. M. Naditch. Not offered in 1974-75.]

385 Theories of Personality (also Psychology 385) Spring term. Credit four hours. Prerequisite: Psychology 101 or 102 or consent of the instructor. Some sociology or anthropology also helpful. M W F 12:20. W. Lambert.

A critical survey of modern theories of personality. An analysis of the relation of personality theory and related research to the social sciences, to psychology, and to literature. The emphasis is upon "normal" personality, and upon clarifying hypotheses for systematic empirical testing.

[387 Psychological Aspects of Political Behavior (also Psychology 387) Fall term. Credit four hours. Prerequisites: junior standing and a course in social or personality psychology or consent of the instructor. M W F 9:05. H. Alker. Not offered in 1974-75.]

[402 Social Theory Spring term. Credit four hours. Prerequisites: two courses in the social sciences or consent of the instructor. T Th 10:10-12:00. A. Paris. Not offered in 1974-75.]

403 Sociology of Science and Technology

Spring term. Credit four hours. Prerequisite: upper-class or graduate student standing. W 1:25-3:20. G. Gordon.

Course will be divided into three parts. Part one will deal with the organization and institutionalization of science and technology with particular reference to scientific accomplishment, leadership, and reward structure. Part two will deal with the external support structure of science with particular reference to government, foundation, and industrial support. Questions to be dealt with will be related to control of science and technology and its products. Part three will deal with the interplay between science and technology, government, and industry in terms of consequences for quality of life over the next ten to fifteen years.

420 Mathematics for Sociologists

Fall term. Credit four hours. Prerequisite: consent of the instructor. M W F 11:15. R. McGinnis.

Review of elementary calculus, linear algebra, and probability theory with emphasis on applications and the construction of social science theory.

421 Mathematical Sociology Spring term. Credit four hours. Prerequisite: Sociology 420. Hours to be arranged. R. McGinnis.

Elementary mathematics as applied to sociological theory. Both deterministic and probabilistic models are considered. Stochastic probability processes are emphasized in relation to theories of social change.

424 Theory Construction and Data Analysis Fall term. Credit four hours. Prerequisite: Sociology 325 or equivalent. T Th 10:10 and one hour to be arranged. S. Caldwell.

An intermediate course in construction and testing formal theories against data. The linear model is examined in detail. Both cross-section and time series data are investigated. The necessary matrix algebra is taught concurrently.

431 Techniques of Demographic Analysis

Spring term. Credit four hours. Prerequisite: Sociology 230 or 330. M W F 10:10. P. Chi.

Methods of processing and analyzing demographic data. Measures of mortality, fertility, migration, and population projections as applied to census and vital statistics data will be analyzed, and the more general applications of demographic techniques to other classes of data illustrated. A set of packaged computer programs will be used in the exercises.

433 Human Fertility in Developed Nations

Spring term. Credit four hours. Prerequisite: Sociology 230 or 330 or consent of the instructor. T 3:35-5:30. R. Avery.

An analysis of the social causation of fertility in areas where fertility is fairly low. This course will review the major studies of differential fertility in the United States and other areas where contraception is widely used. The emphasis will be on reasons for differences

in fertility between groups and the reasons for changes in fertility patterns.

[434 Human Fertility in Developing Nations

Fall term. Credit four hours. Prerequisite: Sociology 230 or consent of the instructor. W 3:35-5:30.

J. M. Stykos. Not offered in 1974-75.]

[435 Mortality and Morbidity Spring term. Credit four hours. Prerequisite: Sociology 230 or consent of the instructor. M W F 11:15. R. Avery. Not offered in 1974-75.]

438 Human Migration and Residential Mobility

Spring term. Credit four hours. Prerequisite: Sociology 230 or consent of the instructor. M 3:35-5:30. P. Chi.

An analysis of international and internal migration as it affects the social and economic structure of societies and the groups in movement. Major theoretical and methodological investigations will be examined. Special emphasis will be given to determinants and consequences of residential mobility within industrial urban centers.

[441 Structure and Functioning of American Society—I

Fall term. Credit four hours. Prerequisite: Sociology 101 or consent of the instructor. T Th 8:40-9:55. R. M. Williams, Jr. Not offered in 1974-75.]

[422 Structure and Functioning of American Society—II

Spring term. Credit four hours. Prerequisite: Sociology 441 or consent of the instructor. T Th 8:40-9:55. R. M. Williams, Jr. Not offered in 1974-75.]

[447 Sociology of Health and Medicine

Fall term. Credit four hours. Prerequisite: background in the social sciences, premedical status, or consent of the instructor. M W F 9:05. Not offered in 1974-75.]

462 The Logic of Research Methods

Fall term. Credit four hours. Prerequisite: undergraduate major in a social science or consent of the instructor. Th 1:25-3:20 and additional time to be arranged. R. K. Goldsen.

Models of explanation underlying current social science research methods are examined. Some alternative models are explored, such as ethnomethodology, transactional psychology, humanistic psychology, social cybernetics, and general systems theory.

470 Urban Research Methods

Fall term. Credit four hours. Prerequisites: Sociology 272 and a college course in statistics or consent of the instructor. M 1:25-3:20. P. Chi.

Emphasis is on problems and methods of analysis in urban research. Topics such as urban boundaries, classification of cities, measures of segregation and urbanization, urban trend analysis, social area analysis, and causal analysis will be stressed. A set of packaged computer programs will be used in exercises.

[472 International Urbanization Spring term. Credit four hours. Prerequisite: a course in urban studies or consent of the instructor. W 1:25-3:20. P. Chi. Not offered in 1974-75.]

480 Attitude Theory (also Psychology 480) Fall term. Credit four hours. Prerequisite: a course in social psychology or consent of the instructor. M W F 10:10. L. Meltzer.

A survey of theory and research on attitudes and attitude change. The cognitive consistency approaches (balance, dissonance, congruity) will be emphasized.

481 Advanced Social Psychology (also Psychology 481) Fall term. Credit four hours. Prerequisite: a course in social psychology or consent of the instructor. T Th 10:10-11:25. D. Regan.

Selected topics in social psychology are examined in depth, with a heavy emphasis on experimental research. Readings consist for the most part of original research reports. Topics discussed may include some of the following: social comparison theory, social and cognitive determinants of the emotions, cognitive dissonance, attributive processes, interpersonal attraction, aggression, altruism and compliance, and research methods in social psychology.

483 Social Interaction (also Psychology 483) Spring term. Credit four hours. Prerequisites: three hours of sociology and three hours of psychology. T Th 1:25 and laboratory T 2:25-3:55. Enrollment limited to fifteen students. D. Hayes.

A field and laboratory course dealing with the major conceptions of the organization and dynamics of face-to-face interaction. Contemporary models and research are emphasized. Student projects are central to this course.

[485 Individual Differences (also Psychology 485)] Spring term. Credit four hours. Prerequisites: seven hours of psychology and upperclass standing or consent of the instructor. M W F 2:30. H. Alker. Not offered in 1974-75.]

[486 Socialization Processes and Social Context (also Psychology 486)] Spring term. Credit four hours. Prerequisites: senior class or graduate student standing and consent of the instructor. Enrollment limited to twenty students. T 1:25-3:20. U. Bronfenbrenner. Not offered in 1974-75.]

487 Selected Problems in Psychopathology and Society (also Psychology 487) Spring term. Credit four hours. Prerequisites: one course in personality or psychopathology and one course in statistics. M W F 10:10. M. Naditch.

Course will focus on one or two selected topics related to personality, situational and social structural aspects of psychopathology, and maladaptive behavior. These topics will be in the general area of sociocultural stress, social psychiatry, and specific problem areas such as alcoholism and drugs.

489 Seminar: Selected Topics in Social Psychology (also Psychology 489) Fall term. Credit four hours. Prerequisites: consent of the instructor and three hours of psychology and three hours of sociology or social psychology. T 2:30-4:20. S. Jones.

The seminar for fall 1974 will be devoted to discussions of problems of "schooling" in general and postsecondary education in particular. Special emphasis will be placed on an analysis of these problems in the light of current research and theory in personality and social psychology.

491 Selected Topics in Sociology Either term. Credit two hours. Open only to majors. Hours to be arranged. Staff.

492 Selected Topics in Sociology Either term. Credit four hours. Open only to majors. Hours to be arranged. Staff.

495 Honors Research: Senior Year Fall term. Credit four hours. Open only to students in the sociology Honors Program. Hours to be arranged. Staff.

496 Honors Thesis: Senior Year Spring term. Credit four hours. Prerequisite: Sociology 495. Hours to be arranged. Staff.

497 Social Relations Seminar (also Anthropology 495) Spring term. Credit four hours. Open only to seniors majoring in social relations. T 11:15-1:25. T. A. Gregor.

For complete descriptions of courses numbered 500 or above see the *Announcement of the Graduate School: Course Descriptions* or consult with the department.

[522 Philosophy of Social Research Fall term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. W 3:35-5:30. R. McGinnis. Not offered in 1974-75.]

526 Advanced Topics in Methodology Spring term. Credit four hours. Offered in alternate years. Prerequisite: Sociology 424 or 420 or equivalent. Hours to be arranged. S. Caldwell.

530 Introduction to Social Demography Fall term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. M W F 10:10. R. Avery.

531 Population Policy Fall term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. W 3:35-5:30. J. M. Stycos.

[536 Demographic Research Methods Fall term. Credit four hours. Prerequisites: Sociology 530 and one year of college mathematics or consent of the instructor. T 3:35-5:30. R. Avery. Not offered in 1974-75.]

[541 Social Organization and Change Fall term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. T 2:30-3:20, Th

1:25-3:20. R. M. Williams, Jr. Not offered in 1974-75.]

550 Social Change and Modernization Fall term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. Th 1:25-3:20. B. C. Rosen.

Methods in Social Psychology (Psychology 545)

580 Experimental Social Psychology (also Psychology 580) Either term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. Hours to be arranged. D. Regan.

584 Proseminar in Social Psychology and Personality (also Psychology 584) Spring term. Credit four hours. Prerequisite: graduate major in social psychology or graduate minor in social psychology with consent of the instructor. M Th 4-5:45.

585 Social Structure and Personality (also Psychology 585) Fall term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. W 3:35-5:30. B. C. Rosen.

602 Seminar: Social Theory Spring term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. Hours to be arranged.

623 Advanced Techniques of Formal Modeling Fall term. Credit four hours. Prerequisites: courses in calculus and probability or consent of an instructor. Hours to be arranged. R. Avery, S. Caldwell, P. Chi, and R. McGinnis.

[641 Seminar: Methods of Research Spring term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. Th 3:35-5:30. R. K. Goldsen. Not offered in 1974-75.]

644 Seminar: Political Sociology Spring term. Credit four hours. Offered in alternate years. Prerequisite: graduate student standing or consent of the instructor. M 1:25-3:20. C. Sheingold.

647 Seminar: Inequality in America Fall term. Credit four hours. Prerequisites: graduate student standing and consent of the instructor. Th 3:35-5:30. J. Kahl.

648 Seminar: the U.S. Presence in Latin America (also Economics 648) Spring term. Credit four hours. Prerequisites: fluent reading knowledge of Spanish or Portuguese and consent of an instructor. Th 3:35-5:30. J. Kahl and T. Davis.

Cross-Cultural Studies of Work and Institutional Development (Industrial and Labor Relations 662, School of Industrial and Labor Relations)

670 Seminar: Economic Demography and Development (also Economics 670) Fall term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. M. Haines.

671 Seminar: Urbanization Fall term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. M 3:35-5:30. L. Reissman.

682 Seminar: Social Psychology (also Psychology 682) Fall term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. Hours to be arranged. W. Lambert.

683 Seminar in Social Interaction (also Psychology 683) Spring term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged. D. Hayes.

691-692 Directed Research Either term. Credit to be arranged (up to four hours). Hours to be arranged. Staff.

Spanish

For complete course listings and for details of the major, see the heading Spanish in the section Modern Foreign Languages and Literatures.

Theatre Arts

M. A. Carlson, chairman; F. L. Churchill, J. H. Churchill, J. H. Clancy, S. Clancy, N. B. Cole, S. R. Cole, P. J. Curtis, L. I. Eilenberg, D. L. Fredericksen, C. B. Jenkins, M. Lawler, L. L. Light, D. Marme, B. O. States, P. A. Stelzer, R. Sudre, R. K. Wadleigh

All students who wish to major in theatre arts must complete Theatre Arts 240 and thirty additional hours of work in the Department which will include substantial work in theatre history, literature, and theory, and in any two of the following four areas: (1) technical production and design, (2) acting/directing, (3) dance, (4) cinema. In addition, majors in theatre arts must complete at least twelve hours of related work outside the Department.

Students who wish to major in dance must, by the beginning of their junior year, have completed or proved competency in Intermediate Modern Technique. Dance majors are required to take a minimum of one technique class each term. The courses required of all majors are: (1) 301 Dance Technique (four semesters, one credit hour each semester); (2) 210-211 Beginning Dance Composition and Music Resources (prerequisite: Rudiments of Music Theory, Music 141-142); (3) 314-315 History of Dance; (4) 316 Biological Anthropology for the Performing Arts. In addition to the twenty-three units listed above, dance majors are required to take twenty units in related fields to be chosen in consultation with an adviser.

Opportunities for performance in theatre, dance, and cinematography are available to all members of the

student body through the facilities of the Department. A wide variety of theatrical performances is presented each term in the University Theatre of Willard Straight Hall, the Kaufmann Auditorium in Goldwin Smith Hall, the Drummond Studio in Lincoln Hall, and the Dance Studio in Helen Newman Hall. Students may participate as actors, dancers, directors, playwrights, designers, or technicians. Auditions for particular productions are scheduled throughout the year.

The Department of Theatre Arts administers the Charles B. Moss Scholarship. The recipient is chosen by the Department from among those majors in the Department who demonstrate exceptional ability.

Distribution Requirement

The distribution requirement in the expressive arts is satisfied by any two of the three- or four-credit courses in the Department of Theatre Arts.

Theatre Laboratory

Each of the following courses, 151-152, 155-156, is offered throughout the year. Credit one hour a term. The courses may be repeated for credit, but no student may earn more than four hours of credit applicable towards graduation. Acting, directing, managerial, and technical responsibilities in production of theatre and dance are under the supervision of the departmental staff. Participation is also open to students without credit.

151-152 Technical Theatre Credit one hour a term. First meeting in Willard Straight Theatre at 7:30 p.m. on the first day of instruction. Shop hours to be arranged. R. Churchill. Only grades of S and U will be given.

Practice in construction, costuming, painting, and lighting for the University Theatre productions. No penalty for late adding.

155-156 Rehearsal and Performance Credit one hour a term. Only grades of S and U will be given.

Credit for participation in producing the play (acting, directing, etc.) under faculty supervision. The student should add this course after having received a position on the production staff or having been cast in a play. This course may be added or dropped without penalty at any time during the semester.

Acting

280 Introduction to Acting Either term. Credit three hours. May not be repeated for credit. Prerequisite: registration through departmental roster in Room 104, Lincoln Hall. Sections limited by number of students. Section 1, M W 2:30-4:25; Section 2, T Th 2:30-4:25; Section 3, T Th 2:30-4:25; Section 4, M W 11:15-1:15; Section 5, T Th 11:15-1:15. Staff.

Introduction to the problems and basic technique of the actor. Practice in creative exercises, improvisation, psychological sets, and physical images.

380 Acting Fall term. Credit three hours. Prerequisites: Theatre Arts 280 and consent of instructor. T Th 2:30-4:25. S. Cole and P. Stelzer.

Practical emphasis upon integration of conception, preparation of role, and techniques of presentation.

381 Acting Spring term. Credit three hours. Prerequisite: Theatre Arts 380. T Th 2:30-4:25. Continuation of Theatre Arts 380.

580 Graduate Acting Either term. Credit four hours. M.F.A. candidates only. May be repeated for credit. M W 12:00-2:00; T Th 9:50-11:50; other hours to be arranged. S. Cole and P. Stelzer.

The study and practice of fundamental and advanced techniques and methodology.

585 Kinesthetics Fall term. Credit two hours. May be repeated for credit by M.F.A. candidates. T Th 12:00. R. Sudre.

Flexibility and coordination exercises, posture and walk control, yoga as applied to theatre movement, introduction to basic rules of body aesthetics, dietetics, and physiotherapy as applied to the performing arts.

586 Kinesthetics for the Theatre Spring term. Credit two hours. Prerequisites: Theatre Arts 585 or consent of the instructor. May be repeated for credit by M.F.A. candidates. T Th 12:00. R. Sudre.

Continuation of Theatre Arts 585 with introduction to techniques of weaponry, combat, and stage dueling.

American Mime

American Mime is a unique performing art created by a particular balance of writing, acting, moving, pantomime, and theatrical equipment. It is a complete theatre medium defined by its own aesthetic laws, terminology, technique, script material, and teaching methods. American Mime is completely different from the pantomime of the French School or the dance of Eastern Mime disciplines. Essentially, it is a medium for actors, who, in characterization, perform symbolic activities through a unique form of movement. These courses introduce students to the major performing areas of the medium.

Students enrolled in American Mime must contact the Theatre Arts Department about supplies one month before the beginning of classes.

575 American Mime Orientation I Fall term. Credit two hours. M 2:30-4:30. R. Wessler and P. Curtis.

Introduction to the basic performing areas of the medium.

576 American Mime Orientation II Spring term. Credit two hours. Prerequisite: Orientation I or con-

sent of the instructor. M 2:30-4:30. R. Wessler and P. Curtis.

Work within class's capabilities towards performance proficiency of the medium.

Voice and Speech

382 Voice and Speech for Performance Fall term. Credit two hours. Primarily for M.F.A. candidates; others with consent of instructor. W F 2:30 and laboratory to be arranged. L. Light.

A study of voice and speech variables and their nature when applied to theatrical performance. Emphasis is on ear training and the techniques of voice production to achieve precision of articulation, and to improve vocal range, resonance, and flexibility. Laboratory sessions under supervision of the instructor include programmed self-instruction in General American and English phonetics, and work on individual voice and articulation problems.

383 Voice and Speech for Performance Spring term. Credit two hours. Prerequisite: Theatre Arts 382. W F 2:30 and laboratory to be arranged. L. Light.

Advanced voice and diction for the stage. Stage dialects studied through the combined approach of applied phonetics and ear training. Continued work in the techniques of voice production to improve range, resonance, and flexibility.

582 Graduate Voice and Speech for Performance Fall term. Credit two hours. M.F.A. candidates only. W F 10:10 and laboratory to be arranged. L. Light.

Emphasis on vocal interpretation of roles. Application of special skills and vocal technique in building character.

583 Graduate Voice and Speech for Performance Spring term. Credit two hours. M.F.A. candidates only. W F 10:10 and laboratory to be arranged. L. Light.

Continuation of Theatre Arts 582.

Dance

Enrollment in all dance courses must be done in Helen Newman Hall, the women's physical education building.

Courses in dance technique are offered each semester: modern, elementary through advanced; ballet, elementary and intermediate. Freshmen and sophomores may satisfy the physical education requirement by taking any of the technique courses. Juniors and seniors may earn one unit of credit each semester for high intermediate and advanced modern technique only.

200 Dance and Movement for the Theatre Fall term. Credit three hours. Section 1, T 4:40; section

2, F 10:10-11:30; and two technique classes per week to be arranged. Staff.

Basic dance technique, improvisation, and composition designed to help the actor improve his use of the body as an expressive instrument.

201 Dance and Movement for the Theatre Spring term. Credit three hours. First term prerequisite to the second. T 4:40 and two technique classes each week to be arranged. R. Wadleigh.

Continuation of Theatre Arts 200.

210 Beginning Dance Composition and Music Resources (also Women's Physical Education 210) Fall term. Credit four hours. Prerequisites: Music 141 and 142 Rudiments of Music Theory, intermediate technique level, and consent of the instructor. Th 4:40 and T or Th 9:05. Modern technique classes to be arranged. P. Lawler and D. Borden.

Parallel studies in the basic vocabulary of movement and in fundamental problems of musical expression in relation to dance. Design and rhythmic structure of phrases for solo figure will be studied in a manner analogous to that used in beginning musical composition.

211 Beginning Dance Composition and Music Resources (also Women's Physical Education 211) Spring term. Credit four hours. Prerequisites: 210 Beginning Dance Composition and Music Resources. Th 4:40 and T or Th 9:05. Modern technique classes to be arranged. Staff.

Continuation of Theatre Arts 210.

301 Dance Technique (also Women's Physical Education 301) Either term. Credit one hour (see below). May be repeated for credit. See Women's Physical Education for schedule of sections. Staff. Only grades of S and U will be given.

Credit will be given only for enrollment in high intermediate or advanced modern technique and only to students of at least junior standing.

310 Advanced Dance Composition (also Women's Physical Education 310) Fall term. Credit four hours. Prerequisite: 211 Beginning Dance Composition and Music Resources. W 7:30 p.m. and T or Th 9:05. Modern technique classes to be arranged. Staff.

Problems in composition for groups, and music resources for dancers.

311 Advanced Dance Composition (also Women's Physical Education 311) Spring term. Credit four hours. Prerequisites: 310 Advanced Dance Composition. W 7:30 p.m. and T or Th 9:05. Modern technique classes to be arranged. Staff.

Further problems in composition for groups.

314 History of Dance Fall term. Credit three hours. M W F 3:35. P. Lawler and R. Wadleigh.

A survey of the history of dance from ancient to contemporary times with emphasis on the development of theatrical forms in western civilization.

[315 History of Dance Not offered in 1974-75.]

[316 Biological Anthropology in the Performing Arts Not offered in 1974-75.]

318 Period Dance Spring term. Credit two hours. Prerequisite: beginning ballet or intermediate modern technique. W F 3:00-4:30. P. Lawler.

A sampling of the social dances from the Renaissance to the present with emphasis on pinpointing basic differences in movement styles and customs in the various periods.

410 Individual Problems in Composition (also Women's Physical Education 410) Either term. Credit three hours. Prerequisite: 311 Advanced Dance Composition. Hours to be arranged. Staff.

Individual problems in composition.

418 Seminar in History of Dance Spring term. Credit three hours. Prerequisite: Theatre Arts 314 or consent of the instructor. Hours to be arranged. P. Lawler.

See instructor for description of the particular aspect of history of dance to be investigated.

Directing

398 First Principles of Directing Fall term. Credit three hours. Prerequisite: one semester of acting class. M W F 2:30. J. Clancy.

The study and practice of the fundamental craft of the director. The structure of visual and temporal patterns as interpretation of the script; rehearsal procedures and techniques; the relationship of the technical and design arts to the directorial approach. Lecture, discussion, demonstration, and practice. Students will prepare scenes for class critique, demonstration, and revision.

498 Advanced Directing Spring term. Credit four hours. Prerequisite: Theatre Arts 398 or consent of the instructor. M W F 2:30. J. Clancy.

Investigation of the theatrical meaning of a play and the methods by which such meaning may be communicated in the modern theatre. Discussion and studio practice.

499 Projects in Directing Either term. Credit to be arranged. Prerequisite: consent of the departmental staff. Hours to be arranged. Staff.

The planning and execution of directing projects by advanced students in the public facilities of the Theatre Arts Department.

Theatre Production and Design

351 Theatre Practice Fall term. Credit two hours. May be repeated for credit. Prerequisites: previous technical assistance in Cornell University Theatre productions and consent of the instructor. Hours to be arranged. J. Churchill, R. Churchill, and D. Marme.

Advanced projects in design or technical production under the supervision of the set designer, the costume designer, or the technical director.

352 Theatre Practice Spring term. Credit two hours. May be repeated for credit. Prerequisites: previous technical assistance in Cornell University Theatre productions and consent of the instructor. Hours to be arranged. J. Churchill, R. Churchill, and D. Marme.

Description same as 351.

354 Stagecraft Either term. Credit four hours. M W 12:20. Laboratory hours to be arranged. R. Churchill.

A survey of technical problems of stage production. Lectures and demonstrations on theatre structure and equipment, scene construction and painting, and stage lighting. Practice in scene construction and lighting for University Theatre productions.

362 Stage Lighting Spring term. Credit two hours. Prerequisite: Theatre Arts 354. T Th 11:15. R. Churchill.

An introduction to lighting design for the theatre, beginning with a basic foundation in the types and functions of the different lighting instruments, control equipment, light sources, and color. The course concentrates on the principal approaches to lighting for a production and the various elements to be considered by the lighting designer.

364 Stage Design I Fall term. Credit four hours. Prerequisite: Theatre Arts 354 or consent of the instructor. T Th 10:10. Laboratory to be arranged. J. Churchill.

Stage scenery design from the specifics of mass, space, and color to the completed theatrical design. Laboratory work with the designer in rendering, scene painting, basic drafting, decor, and lighting.

365 Stage Design II Spring term. Credit four hours. Prerequisite: Stage Design I or consent of the instructor. T Th 10:10. Laboratory to be arranged. J. Churchill.

Continuation of Stage Design I.

366 Costume Design I Fall term. Credit four hours. Prerequisite: consent of the instructor. T Th 12:20. Laboratory, M 2-4 or T 10-12. D. Marme.

Stage costume design and construction. Practice in costume design, period research, rendering techniques.

[367 Costume Design II] Not offered in 1974-75. See instructor for arrangements to take this course during fall semester 1975.]

466 Advanced Costume Design Fall term. Credit and hours to be arranged. Prerequisite: consent of the instructor. May be repeated for credit. D. Marme.

Projects in stage costume design and rendering techniques. Emphasis on design of total production.

467 Advanced Costume Construction Fall term. Credit and hours to be arranged. Prerequisite: consent of the instructor. May be repeated for credit. D. Marme.

Projects in application of historical patterning for the stage.

Playwriting

[348 Playwriting] Not offered in 1974-75.]

[349 Advanced Playwriting] Not offered in 1974-75.]

Theatre History, Literature, and Theory

240 Introduction to the Theatre Either term. Credit three hours. M W F 10:10. M. Carlson and L. Eilenberg.

A survey of the elements of drama and theatre intended to develop appreciation and rational enjoyment of the theatre in all its forms. This is not a production course, and no experience in theatre production is required. Lectures, readings, demonstrations.

300 Independent Study Either term. Credit one to four hours; no more than four credit hours per semester. May be repeated for credit. Staff.

Individual study of special topics. Open to juniors and seniors with consent of the departmental member directing the study.

325 Classic and Renaissance Drama (also Comparative Literature 352) Fall term. Credit four hours. M W F 10:10. H. S. McMillin.

326 European Drama, 1660 to 1900 (also Comparative Literature 353) Spring term. Credit four hours. T Th 10:10-11:40. M. Carlson.

327 Modern Drama (also Comparative Literature 354) Spring term. Credit four hours. M W F 9:05. A. F. Caputi.

333 History of the Theatre I Fall term. Credit four hours. M W F 11:15. L. Eilenberg.

A survey of the characteristics of primitive theatre and of theatrical styles and production modes in Classical Greece and Rome; medieval Europe, the Orient, Renaissance England and Spain.

334 History of the Theatre II Spring term. Credit four hours. M W F 11:15. M. Carlson.

A survey of theatrical styles and production modes since 1642. Among the areas considered will be Renaissance France; the English Restoration; the eighteenth and nineteenth centuries in England, France, and Germany; and the modern international stage.

335 American Drama and Theatre Fall term. Credit four hours. T Th 10:10-11:40. L. Eilenberg.

A study of the American theatre and representative American plays with emphasis on the drama from O'Neill to the present.

336 Theory of the Theatre and Drama Spring term. Credit four hours. M W F 1:25. L. Eilenberg.

A survey of dramatic and theatrical theories with emphasis on the Aristotelian tradition of dramatic criticism and on the theatrical theories and practices of Stanislavski, Brecht, and Grotowski.

[435 The Roots of Modernism] Not offered in 1974-75.]

[442 Ibsen and Strindberg (also Comparative Literature 472)] Not offered in 1974-75.]

530 Literature and the Theatre Both terms. Credit four hours. M.F.A. candidates only. May be repeated for credit. M W 10-11:30. J. Clancy.

Analysis of various types of dramatic literature from the point of view of the theatrical medium.

[633 Seminar in Theatre History] Not offered in 1974-75.]

[636 Seminar in Dramatic Criticism] Not offered in 1974-75.]

637 Seminar in Dramatic Theory Fall term. Credit four hours. Hours to be arranged. B. States.

See instructor for description of the particular aspect of dramatic theory to be investigated.

[638 Seminar in Theory of the Theatre] Not offered in 1974-75.]

[699 Seminar in Theories of Directing] Not offered in 1974-75.]

700 Introduction to Research and Bibliography in Theatre Arts Fall term. Credit one hour. M 2. M. Carlson.

990 Theses and Special Problems in Drama and the Theatre.

Restoration and Eighteenth-Century Drama (English 634)

Introduction to Drama (English 272)

Shakespeare (English 327)

Shakespeare (English 427)

Studies in Modern Drama (English 656)

Russian Theatre and Drama (Russian 332)

Problems in the Analysis of Drama (German 201)

Lessing, Schiller, Kleist (German 354)

Molière (French 462)

French Comedy from Jodelle to Beaumarchais (French 362)

Greek and Roman Drama (Classics 300 and Comparative Literature 300)

Japanese Nô Theatre (Asian Studies 402)

Cinema

375 History and Theory of the Cinema I • Fall term. Credit four hours. A charge of five dollars is made to help defray the expenses of the screenings. This sum is to be paid in class during the first week. T Th 2-4:25. D. Fredericksen.

Within the context of the history of feature films, the description, interpretation, and evaluation of films as works of art and as objects for mass consumption are considered. Statements concerning the nature and functions of film are discussed in relationship to the films screened; and contemporary methods of analysis, such as semiology, auteur theory, and genre theory are introduced.

376 History and Theory of the Cinema II Spring term. Credit four hours. A charge of five dollars is made to help defray the expenses of the screenings. This sum is to be paid in class during the first week. T Th 2-4:25. D. Fredericksen.

An introduction to the history and theory of documentary and experimental films. Major documentary figures covered include Vertov, Flaherty, Grierson, Ivens, Lorentz, Riefenstahl, Capra, and direct-cinema filmmakers. Within the history of experimental films, emphasis is given to the avant-garde of the twenties, the surrealists' reaction to the avant-garde, the movement toward documentary film in the thirties, and American experimental films from the forties to the present.

377 Fundamentals of Cinematography Fall term. Credit four hours. Prerequisite: consent of the instructor. Limited to fifteen students. M W F 2-4:25. D. Fredericksen.

The mechanics and expressive potentials of 16mm filmmaking, including nonsynchronous sound. Each student makes two short films. Emphasis is also given to developing reasoned responses to one's own films and to the films of others in the class. No prior filmmaking experience is assumed.

675 Seminar in the Cinema Spring term. Credit four hours. May be repeated for credit. Prerequisite: consent of the instructor. Limited to fifteen students. W 2-4:25. D. Fredericksen.

Topic for spring 1975: The Nature of Hollywood as an Institution and as a State of Mind. The seminar will attempt to understand why Hollywood, and not simply its films, has proven to be attractive and repulsive to so many people throughout its history. Readings will include novels about Hollywood, biographies, studio histories, studies by anthropologists, sociologists, and psychoanalysts, and, hopefully, some Hollywood films about Hollywood. The seminar can be viewed as a study of some aspects of human nature and what has happened to them in and because of Hollywood. One goal of the seminar is the forming of bases for certain kinds of genetic and affective criticism.

Special Programs and Interdisciplinary Studies

Course Descriptions

For general descriptions of the various programs, see p. 26. Further information is available at the various program offices, or at the Office of Special Programs, 159 Goldwin Smith Hall.

Africana Studies and Research Center

J. Turner, director; Y. ben-Jochannan, W. Cross, C. Everett, H. Maalim, C. Mbata, R. Murapa, T. Mutunhu, B. Parker.

Africana Major

Because of the comprehensive nature of the program, it is to the students' advantage to declare themselves as an Africana studies major as early as possible. Each major must complete three core courses which are as follows: 219, 290, and 360. The core course requirements should be completed by the end of the third semester. An additional twenty-two hours of course credit must be taken in the Center, sixteen of which will be in the student's chosen area of concentration.

The program is divided into three concentrated areas defined as divisions which are as follows. Division I: African, African-American Heritage (History). This division concentrates in African, African-American history, and has offerings in African-Caribbean history. Division II: African-American Literature and Expression. This division includes courses in African and African-American literature as well as drama and theatre. Division III: Politics and Sociopolitical Studies of Black People. This division includes black political thought; politics, education, and the black communi-

ty; racism and colonialism; African socialism, political systems, and development.

At least two courses must be taken in AS&RC 300-level courses and an additional two courses in 400-level courses. The progression of the Center's courses in relationship to the respective divisions are as follows. Division I: 203, 204, 283, 360, 361, 370, 381, 490, 505, 510, 520. Division II: 137, 138, 219, 284, 285, 303, 321, 322, 425, 465. Division III: 171, 172, 190, 231, 290, 301, 302, 344, 346, 351, 352, 400, 420, 475, 485.

The program is a comprehensive one and is designed to extend from the beginning of the freshman year to the end of the senior year at Cornell. However, it is anticipated that many students may wish to declare themselves as an Africana studies major during their sophomore or junior year and suggest the following prerequisites for admission to the major as an upperclassman. Students should submit: (1) a statement of why they want to be an Africana studies major; (2) a tentative outline of what area of study they are considering for the undergraduate concentration; (3) a full transcript of courses taken and grades received. The Center's Undergraduate Faculty/Student Committee will review the applications and notify students within two weeks of the status of their request.

Once admitted as a major in Africana studies, the student is required to maintain a C+ cumulative average in the Center's courses prior to certifying a major from the program.

The Honors Program

The Honors Program offers superior students an opportunity to study independently in seminars and to gain additional experience by engaging in research during the latter part of the junior year or the beginning of the senior year. The basic purpose of the honors/independent study project will be for the student to focus his or her work in the chosen area of concentration. The student is responsible for producing an original project or research term paper that must be read and accepted by two faculty members in the Center. The requirements for admission to the Honors Program are a cumulative average grade of at least B in the Center's courses; B- cumulative average in all courses during the freshman and sophomore years; and outstanding performance in at least one course in the area of concentration by the end of the sophomore year.

Distribution Requirement

The following AS&RC courses satisfy distribution requirements in the disciplines listed. Social sciences: any two of 171, 172, 231, 290, 301, 302, 344, 346, 352, 484, 485. History: any two of 203, 204, 231, 283, 344, 360, 361, 475, 490. Humanities: any two of 219, 321, 322, 422, 465, 492. Expressive arts: any two of 137, 138, 284, 285, 303, 465.

Language Requirement

Successful completion of AS & RC 131, 132, 133, and 134 gives Qualification in Swahili. Successful completion of AS & RC 202 gives Proficiency in Swahili.

131 Swahili Fall term. Credit four hours. Requires no previous knowledge of the language. M W F 10:10. H. Maalim.

Beginner's Swahili. Grammar Part I.

132 Swahili Spring term. Credit four hours. Prerequisite: Swahili 131 or previous study of the language. M W F 10:10. H. Maalim.

Elementary reading and continuation of grammar.

133 Swahili Fall term. Credit four hours. Prerequisites: Swahili 131, 132, M W F 12:20. H. Maalim.

Advanced study in reading and composition.

134 Swahili Spring term. Credit four hours. Prerequisites: Swahili 132, 133 or consent of instructor. M W F 12:10. H. Maalim.

Advanced study in reading and composition.

137 Afro-American Writing and Expression Fall term. Credit four hours. Prerequisite: consent of instructor. T Th 3:35. Staff.

Designed to develop and expand clarity and resourcefulness of written expression in the study and discussion of black people and black ideas, through wide and extensive use of basic methods of writing organization in conjunction with formal and informal definition, as well as to develop the finer points of basic writing skills and mechanics.

138 Creative Writing and Expression Spring term. Credit three hours. Prerequisite: consent of instructor. T Th 3:35. Staff.

Mainly concerned with the writing of Afro-American prose with an emphasis on fiction and the personal essay. Afro-American music forms and assumptions will be exploited as fully as possible.

171 Infancy, Family, and the Black Community Fall term. Credit four hours. Prerequisite: consent of instructor. T Th 3:35. W. Cross.

A critique of the social and behavioral research in the areas of child development, family, and culture; examination of the skills and competencies acquired in the black environment.

172 Teaching and Learning in Black Schools Spring term. Credit four hours. Prerequisite: Africana Studies 171 or consent of instructor. T Th 3:35. W. Cross.

Devoted to key issues in the psychology of the black American experience and the relationship of critical psychological factors to teaching and learning in black schools.

190 An Introduction to Modern Political Systems Either term. Credit four hours. Hours to be arranged. T. Mutunhu.

Focus will be on the evaluative and analytical interpretation of the sociopolitical and economic systems and structures of Zaire, Uganda, Ethiopia, Camerouns, Guinea, and Algeria, as well as the nationalistic struggles in Southern Africa.

202 Swahili Literature Spring term. Credit four hours. Prerequisites: Swahili 131, 132, 134. Hours to be arranged. H. Maalim.

An advanced course which will introduce students to the predominant Swahili literary forms, while at the same time expose them to the current usage of the language. Students will be expected to gain mastery over spoken Swahili so that they may be conversant with the written history of Swahili as well as its development in script and contemporary materials.

203 History and Politics of Racism and Segregation Fall term. Credit four hours. T Th 1:25. C. Mbata.

A cross-cultural study in historical context of the evolution of racist thought and practice in Southern Africa and North America.

204 History and Politics of Racism and Segregation Spring term. Credit four hours. Prerequisite: Africana Studies 203 or consent of instructor. T Th 1:25. C. Mbata.

The history of South Africa will be used as a frame of reference, with parallels and contrasts drawn from the greater Africa and the North American experiences. A study of racism as it unfolded with colonial expansion.

219 Issues in Black Literature Fall term. Credit four hours. Prerequisite: consent of instructor. Hours to be arranged.

A study in the adjustment between practice and ideology in the works of six representative writers of the Black Arts Movement: Milner, Marvin X, Sanchez, Garrett, Caldwell, and Elder.

231 Black Political Thought Fall term. Credit four hours. M W F 1:25. R. Murapa.

Will cover three major organizational philosophies in Black America since 1850 which are as follows: emigrationism, accommodationism, and Pan-Africanism. Emphasis on study will concentrate on recurrent themes running throughout black political, social, economic, and psychological history.

283 Black Resistance: South Africa and North America Fall term. Credit four hours. M W 3:35. C. Mbata.

The term 'resistance' is given a wide connotation to include all forms of organized effort to withstand political, social, and economic deprivation. A study of black political movements in South Africa and North

America, and their responses to the situations of race relations which formed the contexts of their operations.

284 History of Blacks in Theatre and Drama in America Fall term. Credit three hours. Prerequisite: consent of instructor. M W F 2:30. May not be offered in 1974.

An introductory course in the history of black theatre which is designed to trace the development of blacks, as characters and participants, in theatre history and drama in America since the theatre's assumed inception.

285 Perspectives in Black Theatre Arts and Dramatic Literature Spring term. Credit three hours. Prerequisite: preference is given to students who have had experience with black theatre production. M W F 2:30. Staff. May not be offered spring 1975. Check with AS&RC before registering.

A survey course which primarily concerns itself with a historical, theoretical, and interpretive study of the black actor's or playwright's role and contribution to the theatre from its assumed inception in America in 1767 to the present time.

290 The African Diaspora and the Black Experience Fall term. Credit three hours. Prerequisite: consent of instructor. Hours to be arranged. J. Turner.

A basic introductory course to black studies required for all undergraduate students majoring in Africana studies: will begin with a survey of the early development of African people and their dispersion throughout the world.

300 Communications and Development in Africa Fall term. Credit four hours. Prerequisite: consent of the instructor. Hours to be arranged.

Will survey the history, on the African Continent, of the utilization of radio and television from their beginnings to the present day. The use of the media to propagate political systems and beliefs and attitudes will be studied, since the mass media are not only factors of entertainment, education, and information, but also of propaganda.

301 Seminar: Psychological Aspects of the Black Experience Fall term. Credit four hours. Prerequisite: consent of instructor. Hours to be arranged. W. Cross.

Seminar discussions will use existing research to raise specific questions ranging from the acquisition of black culture and living patterns in the black community to education and new cultural political awareness. Students will be required to define a problem and to carry out the research.

302 Social and Psychological Effects of Colonization and Racism Spring term. Offered in alternate years. Credit four hours. Prerequisite: Africana Studies 301 or consent of instructor. W 3:00. Staff.

Will concentrate on the psychological, social, and cultural effects of colonization and oppression, and the effects of massive psychological degradation generated by the attitudes of racial and cultural superiority on the part of white Westerners—the understanding of which is critical for the untangling process of liberation for blacks.

303 Blacks in Communication Media and Film Workshop Spring term. Credit four hours. Prerequisite: Africana Studies 284 or 300. T 4:30.

Lectures will cover the history of film and the black aspect of it, the evolution of the documentary, the different approaches to the use of film and film as it affects public opinion. There will be screenings of relevant contemporary films, rare, old black films and produced films.

321 History of Afro-American Literature Fall term. Credit four hours. Prerequisite: Africana Studies 137, 138 or 219 or consent of instructor. M W F 11:15. C. Everett.

History and analysis of Afro-American literature. Chronologically, the concern is with the advent of Afro-American literature represented by the slave narratives, up to and through the emergence of Richard Wright.

322 History of Afro-American Literature Spring term. Credit four hours. Prerequisite: Africana Studies 321 or consent of instructor. M W F 11:15. C. Everett.

Concentration will be on American black literature from Richard Wright through contemporary times.

344 An Introduction to Neo-Colonialism and Government in Africa: Problems of Africanization and Development Fall term. Prerequisite: consent of instructor. T Th 3:35. R. Murapa.

Designed to study the problems of government in Africa with emphasis on the Anglophone countries, i.e., Ghana, Nigeria, Kenya, Uganda, Tanzania, Zambia, and Malawi.

345 Afro-American Perspectives in Experimental Psychology (also Psychology 345) Spring term. Credit three or four hours. Offered in alternate years. Enrollment limited to forty students. Prerequisites: sophomore status, six hours in the behavioral sciences, and permission of the instructor. T Th 2:30-4:25. W. Boykin.

A critical examination of a representative sample of the philosophical presuppositions, methodologies, data, and theories in experimental psychology that pertain directly to black Americans.

346 African Socialism and Nation Building Spring term. Credit four hours. Prerequisite: consent of instructor. T Th 3:15. R. Murapa.

Designed to explore and critically analyze the various theories of African socialism as propounded not only by theorists but also by practitioners. Comparison of those ideas extending from Nyerere's "Ujamaa" to

Nkrumah's "Scientific Socialism", i.e., the desirability and practicality of the Marxian type of socialism in Africa.

351 Politics in the Afro-Caribbean World: an Introduction Spring term. Credit four hours. Prerequisite: consent of instructor. Offered according to demand.

West Indian political problems. An attempt to critically examine those social, political, economic, and psychological forces that have conspired to shape Caribbean societies from the period of the organized arrival of Europeans to the present time.

352 Pan-Africanism and Contemporary Black Ideologies Spring term. Credit four hours. Prerequisite: consent of instructor. M W 1:25. R. Murapa.

A study of Pan-Africanism, in historical context, which will review and analyze the literature and activities of early black Pan-African theorists and planners who have seldom been incorporated in the modern study of Pan-Africanism.

360 Ancient African Nations and Civilizations Fall term. Credit three hours. T Th 12:20. T. Mutunhu.

An introduction to African history. The evidence that tends to prove that mankind originated in Africa will be examined. Special attention will be paid to all of the main currents of African history.

361 The African in the Making of the New World Spring term. Credit three hours. Prerequisite: Africana Studies 360. M W F 10:10. T. Mutunhu.

Examination, in detail, of the role that people of African descent have played in the making of the nation in what is called the "New World." It will be shown that all Africans who were brought to the "New World" were not slaves.

370 Main Currents in African and Afro-American History Either term. Credit three hours. Hours to be arranged. Staff.

A general survey will be made of the historical situation of African peoples in Africa and the United States: major events in the history of culture of African peoples from antiquity to the present.

381 The Slave Trade of Africans Spring term. Credit three hours. Prerequisite: Africana Studies 361 or consent of instructor. M W F 3:35. T. Mutunhu.

The chief objective will be an attempt to put into a manageable historical perspective all the social and economic forces related to the involuntary migration of several million Africans from Africa to the western hemisphere through the African slave trade, beginning with a critical study and analysis of the institution of slavery and its historical development.

400 Political Ideology, Planning and Development in Africa Spring term. Credit four hours. Prerequisite: Africana Studies 346 or consent of instructor. Hours to be arranged.

The concept of ideology will be discussed and its meaning and role in the process of nation-building, decolonization, and economic development in the newly emerging nations.

420 Politics and Black Community Organization Offered in alternate years. Spring term. Credit four hours. Prerequisite: consent of instructor. Hours to be arranged. J. Turner.

Examination of the social, political, and economic factors contributing to the development and perpetuation of the so-called ghetto, principally in urban areas. Particular emphasis will be placed on the current conditions in black communities.

422 African Literature Spring term. Credit four hours. Prerequisite: Africana Studies 219, 321, 322 or consent of instructor. Offered according to demand.

The main focus will be on the basic themes in the twentieth-century literature produced by Africans south of the Sahara. The coverage will include texts originally written in French, English, or indigenous African languages.

425 Advanced Seminar in Black Theatre Fall term. Credit four hours. Prerequisite: Africana Studies 284 or 285. Hours to be arranged. C. Everett.

Concerns the study and production of the total black theatre: critique of black dramatic literature by established dramatists and new and emerging black playwrights, and the delineation of the problems, approaches, and philosophies of black acting, direction, writing, and theatre production.

465 Black Critique: Towards Defining and Developing a Black Aesthetic Spring term. Credit four hours. Prerequisite: Africana Studies 219, 321 or 322. M F 1:25. C. Everett.

Created to speak to the crucial need of developing a black critique: a system of aesthetic-moral-cultural values and judgments which black people can develop, recognize, and viably respect as black aesthetics.

475 Men and Movements in the Black Urban Ghetto Spring term. Credit four hours. Offered in alternate years. Prerequisite: Africana Studies 231 or consent of instructor. Hours to be arranged. Staff.

An examination will be made of the personalities and movements that have influenced the black ghettos of the United States. Political, social, and religious movement will be examined.

483 Themes in African History Credit four hours. Offered in alternate years. Prerequisite: one of the following courses: Africana Studies 360, 361, 370 or consent of instructor. Hours to be arranged. C. Mbata.

Designed to expose the student to what has been referred to as "particular aspects" of African history. The survey approach will be adopted in the treatment of selected themes and use will be made, where necessary, of the work done in auxiliary disciplines.

485 Racism, Social Structure, and Social Analysis Seminar Spring term. Credit four hours. Prerequisite: one of the following courses: Africana Studies 203, 204, 231, 352, 381, 420 or consent of instructor. Hours to be arranged. J. Turner.

This course will develop a systematic discussion and study of the interrelated process of racism to social structure in America, and its consequence for social analysis of the function and prevalence of racism in the society.

490 An Advanced Reading and Research Seminar in Black History Credit four hours. Offered in alternate years. Prerequisites: at least two of the following courses: Africana Studies 203, 204, 360, 361, 370, 483, or consent of instructor. T 4:40. C. Mbata.

Designed to help students acquaint themselves with the available sources of information and materials of black history and make the maximum use of their own inclinations and interests in unearthing the material and creating a body of comprehensive conclusions and generalizations from it.

498-499 Independent Study Either term. For students working on special topics with selected readings, research projects, etc., under the supervision of a member of the Africana Studies and Research Center's Staff. Hours to be determined. All AS&RC faculty members.

500 Political Ideology, Planning and Development in Africa Spring term. Credit four hours. Offered in alternate years. Prerequisite: Africana Studies 344, 346, or consent of instructor. Hours to be arranged.

Discussion of problems of economic development and political modernization in Africa, and an examination of the various ideologies which have been worked out in response to the problems. Particular attention is given to the role of planning in economic development prescribed by the various ideologies and the relationship of planning to the political system as a whole.

505 Workshop in Teaching about Africa Credit four hours. Offered in alternate years. Prerequisite: Africana Studies 203, 204, or 360, 361, or consent of instructor. Hours to be arranged. C. Mbata.

Enables students to gain experience in the handling of various problems involved in teaching about Africa. Special attention will be given to the evaluation of materials on Africa, the correction of myths and misconceptions about Africa, the application of current methods of education to the task of teaching about

Africa, and the analysis of problems in African history.

510 African Heritage: Historiography and Sources Fall term. Credit four hours. Offered in alternate years. Prerequisite: upperclass or graduate student status, or consent of instructor. Hours to be arranged. Staff.

An in-depth examination will be made of the problems encountered by historians in attempting to reconstruct the African past. Emphasis will be placed on perspectives and how these affect conclusions.

515 Comparative Political History of the African Diaspora Credit four hours. Offered in alternate years. Prerequisites: upperclass or graduate student status, or two of the following courses: *Africana Studies* 203, 204, 283, 360, 361, 475, 484, 490. Hours to be arranged.

A comparative study of the following West African nations: Ghana, Sierra Leone, and Liberia. The study will focus, mainly, on the political evolution of these nations and how this evolution affected the African diaspora.

520 African Heritage: Historical Method, Sources, and Interpretation Fall term. Credit four hours. Offered in alternate years. Prerequisites: upperclass or graduate student status, or two of the following courses: *Africana Studies* 203, 204, 361, 475, 484, 490. Hours to be arranged. C. Mbata.

Careful scrutiny of the methods applied in historical research will be made since much of the work that was standard in the past is now being seriously questioned by the student of African history. Particular emphasis will be placed on the history of Africa and the African diaspora.

551 Political History of Social Development in the Caribbean Credit four hours. Offered according to demand. Prerequisite: upperclass or graduate student status and/or consent of instructor. Hours to be arranged.

The history of the British Caribbean since the forced arrival of Africans, with special attention to the analysis of the strategies and contacts employed by the slaves and their succeeding generations to come to terms with the new environment.

571 Infancy, Family, and the Community Fall term. Credit four hours. Prerequisite: consent of instructor. Hours to be arranged.

The graduate and advanced undergraduate student will study, systematically, the research literature and conceptual issues in the development of black children: their early environment, family and community, cognitive or intellectual development, and socialization into Afro-American culture.

College Scholar Program

College Scholar 396-397 Credit one or two hours. Throughout the year. Independent study.

College Scholar 398-399 Credit three or four hours. Throughout the year. Independent study.

Program in Greek Civilization

The following courses constitute the Program in Greek Civilization. When a course enrollment is large, students in the Program will normally meet in a small section. Taken as a whole the Program satisfies all underclass requirements except the distribution requirement in science. Taken separately the following sequences satisfy the following requirements: any two of *Classics* 119, 220 and 224 satisfy the distribution requirement in the humanities (unless used for other requirements); *History* 261 and *Classics* 222 satisfy the distribution requirement in history; *Classics* 119 and 120 may be used to satisfy the freshman seminar requirement.

101-103, 201-203 Greek Language 101, 201 fall term; 103, 203 spring term. Credit three hours a term. The introduction to ancient Greek is designed to allow for the reading of important works beginning early in the second semester with Plato's *Euthyphro*. In the second year works will sometimes be chosen for simultaneous treatment in the language course, and in translation in another course so that contact with the original will allow a closer and fuller study of its meaning. The works chosen will vary from year to year, but will be drawn from such writers as Homer, Euripides, Plato, and Sophocles.

Freshman Seminar in Greek Literature (Classics 119)

Classical Antiquity (History 261 or 461)

Introduction to Classical Archaeology (Classics 220)

[Greek Science (Classics 222) Not offered in 1974-75.]

[Greek Philosophy (Classics 224) Not offered in 1974-75.]

Greek Political Philosophy (Government 360)

Human Affairs Program

The following Human Affairs Program courses were offered in 1973-74. Because Human Affairs Program fieldwork changes from time to time, the status of each course is reviewed shortly before the start of each academic year. Before enrolling in any course, students should consult the Human Affairs Program office to determine whether it is to be offered in 1974-75.

HAP Courses Offered in 1973-74

Credit six hours.

408 Community Communication

421 Community Organization and Change

423 Bluebus**425 Women****429 Elmira Redevelopment****433 Welfare Organizing****435 Criminal Justice****495 Advanced Work In the Human Affairs Program**

Enrollment by a student in HAP requires admission to a specific project, after a personal discussion with appropriate faculty members and the project leader. Although specific requirements vary with each project, all students enrolled in HAP courses are expected to participate both in the field work experience and in weekly seminars devoted to the discussion of specific fieldwork problems and the assigned reading for the course. The written analysis of the semester's work provides an occasion for the integration of the fieldwork experience with the reading and analysis presented in the seminar meetings. Information about specific course offerings is available at the Human Affairs Program Office, 330 Sheldon Court.

Independent Major Program

Independent Major 301-302 Credit two hours. Throughout the year. Independent study. Permission of program director required.

Independent Major 351-352 Credit three or four hours. Throughout the year. Independent study. Permission of the program director required.

Honors Research

Independent Major 398-399 Credit variable up to eight hours per year. Throughout the year. For honors candidates only. Independent research or completion of honors project.

Center for International Studies

The Center for International Studies supports and coordinates the University's programs of international and comparative studies. By serving as a focal point for ideas, information, and advice about the University's wide range of international offerings, the Center contributes to their further development. The Center places particular emphasis on strengthening inquiry into issues which cut across disciplinary, professional, and regional concerns, and to providing a continuing source of innovation and experimentation in international studies.

The Center and its constituent programs promote interdisciplinary teaching and research in international and comparative subjects to supplement work done within the regular departments and fields. Area programs include: East Asian (Chinese and Japanese) studies, Latin American studies, Southeast Asian studies, South Asian studies, and Soviet studies. Problem oriented programs include those concerned

with advanced societies, agriculture, nutrition, participation and labor-managed systems, peace studies, population, rural development, and science and technology.

CIS 211 Peasants, Power, and Productivity: Rural Development in the Third World Spring term. Credit four hours. Hours to be arranged.

Faculty from agricultural economics and engineering, rural sociology, anthropology, and government.

An interdisciplinary course dealing with problems and strategies of rural development in Africa, Asia, and Latin America. The conditions and potentiality of rural people will be considered—cultural and ecological "constraints," traditional and modern techniques, land tenure and reform, economic exploitation and political power—as will be strategies for raising their power and productivity.

Latin American Studies

S. Barraclough, J. W. Converse, L. V. Crowder, T. E. Davis, M. Drosdoff, D. K. Freebairn, R. K. Goldsen, W. W. Goldsmith, R. González, T. Gregor, J. S. Henderson, J. H. Holloway, J. A. Kahl, L. Kerr, T. F. Lynch, R. E. McDowell, J. V. Murra, T. Poleman, B. C. Rosen, J. F. Scott, D. F. Solá, J. M. Stycos, R. B. Thomas, H. D. Thurston, W. F. Whyte, L. K. Williams, F. W. Young

The Latin American Studies Program is an interdisciplinary program reflecting a wide variety of interests. In addition to linguistics, Spanish, Portuguese, and Quechua classes, area courses offered by the College of Arts and Sciences include:

[Ethnohistory (Anthropology 418) Not offered in 1974-75.]

[Middle America (Anthropology 631) Not offered in 1974-75.]

Tribal Peoples of Lowland South America (Anthropology 632)

[Andean Research (Anthropology 633) Not offered in 1974-75.]

[Origins of Meso-American Civilization (Anthropology 667) Not offered in 1974-75.]

Economic History of Latin America (Economics 525)

Economic Problems of Latin America (Economics 565)

Contemporary Brazil (Economics 568 and Sociology 368)

Issues In Latin America (Economics 648)

Seminar: the U.S. Presence In Latin America (Government 688 and Sociology 648)

Government and Politics of Latin America (Government 650)

Latin American History to 1825 (History 210)

Latin American History since 1825 (History 211)

[Quantitative Approaches in History (History 306)
Not offered in 1974-75.]

Supervised Reading (History 703-704)

Pre-Columbian Art (History of Art 315)

[Latin American Art (History of Art 392) Not offered in 1974-75.]

[Seminar in Latin American Art (History of Art 510) Not offered in 1974-75.]

Sociolinguistics (Linguistics 405-406)

[Human Fertility in Developing Nations (Sociology 434) Not offered in 1974-75.]

Introduction to Social Demography (Sociology 530)

[Spanish-American Literature to "Modernismo" (Spanish 329) Not offered in 1974-75.]

[Spanish-American Literature from "Modernismo" to the Present (Spanish 330) Not offered in 1974-75.]

[Twentieth-Century Spanish-American Drama (Spanish 332) Not offered in 1974-75.]

History of the Spanish Language (Spanish 401)

The Grammatical Structure of Spanish (Spanish 408)

Hispanic Dialectology (Spanish 601)

Linguistic Structures of Ibero-Romance (Spanish 602)

Contemporary Theories of Spanish Phonology (Spanish 603)

Contemporary Theories of Spanish Grammar (Spanish 604)

Seminar in Ibero-Romance Linguistics (Spanish 700)

Law and Society

The courses listed below, and any others on the approved supplemental listing available from all law and society advisers (see p. 29), qualify for the concentration in law and society.

Introduction to Roman Law (Classics 304)

Public Regulation of Business (Economics 352)

Law and Society (Government 118)

The Nature, Functions, and Limits of Law (Government 313)

Law and Social Science (Government 324-325)

Criminal Justice and Public Policy (Government 322)

Civil Liberties in the United States (Government 327)

[Constitutional Politics (Government 328) Not offered in 1974-75.]

International Law (Government 389)

[American Constitutional Development (History 318) Not offered in 1974-75.]

The Early Development of the Anglo-American Common Law (History 359)

Church and State during the Middle Ages (History 367)

Law, Society, and Morality (Philosophy 342)

[Biblical Law (Semitics 333) Not offered in 1974-75.]

The Law and Environmental Control (Civil and Environmental Engineering 605, College of Engineering)

The Law and Environmental Control (Civil and Environmental Engineering 605, College of Engineering)

Labor Relations Law and Legislation (Industrial and Labor Relations 20, School of Industrial and Labor Relations)

Development of American Ideals (Industrial and Labor Relations 308, School of Industrial and Labor Relations)

Protective Labor Legislation (Industrial and Labor Relations 341, School of Industrial and Labor Relations)

Legal and Market Controls of Technological Change (The Law School)

Religious Studies

J. B. Long, chairman; C. M.-Arroyo, J. P. Bishop, R. G. Calkins, C. M. Carmichael, K. M. Clinton, M. J. Colacurcio, J. J. John, R. E. Kaske, A. T. Kirsch, N. Kretzmann, B. Netanyahu, S. J. O'Connor, A. E. Paris, J. F. Scott, J. T. Siegel, S. C. Strout, G. F. Streib, B. Tierney, A. W. Wood

The concentration in religious studies is an interdisciplinary program reflecting a wide variety of academic interests and disciplines. The intention of the program is to provide a formal structure for the study of the religions of mankind at the undergraduate level. A student may fulfill the requirements for a Concen-

tration in Religious Studies by completing a minimum of four courses which have been approved by an advisor in the area of the Concentration. The program is administered by a committee, the chairman of which is J. Bruce Long, 158 Rockefeller Hall. Courses in religious studies are offered in the following departments: Anthropology, Asian Studies, Classics, History, History of Art, Medieval Studies, Philosophy, Semitic Languages and Literatures, and Sociology.

Program in Roman Civilization

The courses listed below constitute the Program in Roman Civilization. The Program as a whole satisfies all underclass requirements except the distribution requirement in science. Taken separately the following sequences satisfy the following requirements: History 262 and either 261 or 263 will satisfy the distribution requirement in history; the distribution requirement in the humanities will be satisfied by any two of Classics 225, History of Art 322, and a course in Latin at or above 207 level. Classics 120 may be used either towards the humanities requirement or towards the freshman seminar requirement but not both.

105, 106, 108, 207, 208, 215, 216 Latin Language 105, 108, 207, 215, fall term; 106, 208, 216, spring term. These courses must be taken by students in the Roman Civilization Program at the rate of one each term starting at an appropriate level. The elementary courses (105, 106), for those who have no previous knowledge of Latin, are designed to achieve the reading of interesting original works beginning in the second semester. Students with some knowledge of Latin are placed in more advanced courses, according to the results of a Classics Department placement examination (see p. 20). The works taught in any given course may vary from year to year, but will include a range of the best Latin poets and prose writers. The main stress in reading will be on literary aspects of the works assigned.

Freshman Seminar in Latin Literature (Classics 120)

Introduction to Roman Law (Classics 304)

[Roman Philosophy (Classics 225) Not offered in 1974-75.]

Classical Antiquity (History 261-262)

Medieval History (History 263)

The Roman Revolution, 146-44 B.C. (History 461)

Early Imperial Rome, 44 B.C.-A.D. 70 (History 462)

Introduction to Art History: Art of the Classical World (History of Art 215)

Program on Science, Technology, and Society

Biology and Society (Biological Sciences 202)

Special Topics in Social Biology (Biological Sciences 203-204)

Science, Technology, and Public Policy in the United States (Business and Public Administration NPA 504, School of Business and Public Administration, and Government 626)

Science, Technology, and Development (Business and Public Administration NCE 512, School of Business and Public Administration, and Government 685)

[Science, Technology, and International Relations (Business and Public Administration NCE 513, School of Business and Public Administration, and Government 683) Not offered in 1974-75.]

The Computerized Society (Computer Science 105)

Social Implications of Technology (Civil and Environmental Engineering 2205, College of Engineering)

The Law and Environmental Control (Engineering, Civil and Environmental, 2605, College of Engineering)

Technology and Society — An Historical Perspective (Engineering, Mechanical, 3020, College of Engineering)

Seminar in Technology Assessment (Engineering, Civil and Environmental, 2606, College of Engineering)

Urban Studies Laboratory (Government 312)

[Defense Policy and Arms Control (Government 384) Not offered in 1974-75.]

Philosophical Problems in the History of Biology (History 386 and Philosophy 386)

Seminar on Science, Technology, and Law (Law 590, The Law School)

Philosophy of Choice and Decision (Philosophy 383)

Sociology of Science and Technology (Sociology 403)

The Impact and Control of Technological Change (Urban Planning and Development 434, College of Architecture, Art, and Planning, and Economics 302)

The Politics of Technical Decisions (Urban Planning and Development 533, College of Architecture, Art, and Planning, and Government 629)

Course descriptions and a list of other relevant courses may be obtained from the program office, 614 Clark Hall (256-3810).

Society for the Humanities

Henry Guerlac, director. Fellows for 1974-75: Charles F. Altman (Bryn Mawr College); Jean-Claude Bonne (Ecole Pratique des Hautes Etudes, Paris); James Cross (University of Liverpool); Ephim Fogel (Cornell University); Peter Hughes (University of Toronto); Lisa Jardine (Warburg Institute); Isaac Kramnick (Cornell University); Norman Kretzmann (Cornell University); James Patrick (Princeton University).

Membership in the Society's seminars is open, upon special application, to graduate students and suitably qualified undergraduates. The College determines if a seminar may be taken for credit (see below). There are no examinations; normally only S and U grades are given; and it is at the discretion of the Fellow whether to require only oral reports, or, in addition, a research paper. All seminars are held in the Society's quarters. Persons other than those officially enrolled may attend as visitors with the permission of the instructor.

101 Freshman Seminar: Science as Literature

Either term. Credit three hours. Hours to be arranged. H. Guerlac and R. Hume.

Topics in physical and biological sciences approached through works chosen for their literary merit and exemplifying different literary forms. Readings will include original scientific writings, novels and biographies, examples of distinguished popularization, science fiction, etc. Short papers will be required every other week.

413-414 Seminar on the Semiotics of the Visual Arts 413 fall term only; 414 spring term only. Credit four hours a term. Fall term, Th 3:35-5:20. Spring term, T 3:35-5:20. J. C. Bonne.

An attempt will be made to link three types of research, the semiological, the historical, and the epistemological. The first will deal with the notion of a logic of pictorial space (special attention will be paid to the notions of "limit" and "decoration"). The second will be based on analysis of works of the first millennium of Western Art, including the Romanesque. And the third will deal with semiotics in general, its objects, methods and theories, particularly by means of discussion based on theoretical texts.

415-416 Seminar on the Interpretation of Eighteenth-Century Literature 415 fall term only; 416 spring term only. Credit four hours a term. T 1:25-3:10. P. Hughes.

A study of tradition and innovation in English and French literature from 1650 to 1800 will accompany discussion of new approaches to literary history and criticism. This seminar's theme will be the heroic mode and its transformations into satire, history, and poetic myth. Authors to be read include Dryden, Racine, Swift, Montesquieu, Vico (in translation), Johnson, Rousseau, Gibbon, Laclous, Blake, and Sade.

417 Seminar on Eternity, Time, and Change

Fall term. Credit four hours. T 3:45-5:30. N. Kretzmann.

A study of the origin and development of these three related concepts in antiquity, especially as treated by Heraclitus, Parmenides, Zeno, Plato, Aristotle, and Plotinus.

418 Seminar on the Interpretation of Old English Literature Spring term. Credit four hours. W 3:35-5:20. J. Cross.

This seminar will consider the problems of orientation into the intellectual atmosphere of the Old English period for the purpose of understanding and explicating Old English literary pieces, both poetry and prose. Past and present critical points of view will be considered against the selected literary pieces. Some knowledge of Old English and Latin would be helpful.

419 Seminar on Narrative Typology Fall term. Credit four hours. Reading knowledge of French desirable but not necessary. M 1:25-3:10. C. F. Altman.

Development of a theory of narrative meaning through close analysis of literary texts. During the latter part of the semester, an attempt will be made to expand that theory to various forms of nonliterary narrative (narrative painting, cinema, sacred history). Participants will be encouraged to pursue the topic in their own special area of competence.

420 Seminar on Medieval Narrative Spring term. Credit four hours. Reading knowledge of French and Latin desirable but not necessary. M 1:25-3:10. C. F. Altman.

Application of the theory developed during the fall semester to the narrative texts of a specific period. Literary, historical, religious, psychological, and pictorial texts will be related through the common denominator of narrative form. Emphasis will be on the use of narrative form to define *Weltanschauung*.

421 Seminar on Jazz Research Fall term. Credit four hours. Prerequisite: any music course or the ability to read music. T 2:30-4:15. J. Patrick.

Topics will include: the problems of discography and sound recordings as musical sources, the notational representation of recorded performances, and the analysis of specific improvised performances. Additional topics will be arranged to meet specific interests.

422 Seminar on the History of Jazz Spring term. Credit four hours. Prerequisite: any music course or the ability to read music. T 2:30-4:15. J. Patrick.

General coverage from 1917 to the present. Consideration of basic musical issues which intersect different styles and periods: form types, improvised variation, rhythm section accompaniment, the blues tradition, and the vocal idiom. Particular attention will be paid to the work of Armstrong, Ellington, Parker, Davis, and Coltrane.

423-424 Seminar on Renaissance Dialectic and Method

423 fall term only; 424 spring term only. Credit four hours a term. Fall term, W 3:35-5:20. Spring term, Th 3:35-5:20. L. Jardine.

The seminar will explore the relation of the study of dialectic to the sixteenth-century arts course, as a background to Renaissance discussions of method. Topics will include, the humanist revision of scholastic dialectic, Ramism and contexts for controversy about method, the relation of sixteenth-century theory of method to contemporary issues in natural philosophy and in literary exegesis and composition.

425-426 Seminar on Bourgeois Radicalism

425 fall term only; 426 spring term only. Credit four hours a term. First term not prerequisite to the second. M 3:35-5:20. I. Kramnick.

A study of social thought in the industrial revolution of late eighteenth-century England. The seminar will read essays, diaries, and letters of representative political, scientific, industrial, and feminist figures that include Price, Paine, Priestley, Wedgwood, Godwin, and Mary Wollstonecraft.

427-428 Seminar on Twentieth-Century Poetry in America and Russia

427 fall term only; 428 spring term only. Credit four hours a term. First term not prerequisite to the second. W 1:25-3:10. E. Fogel.

The development of modernism in American and Russian poetry in the first four decades of the twentieth century. The achievement of such American poets as Pound, Eliot, Williams, and especially Wallace Stevens; and of such Russian poets as Blok, Akhmatova, Mayakovsky, Pasternak, and especially Osip Mandelstam. Among the topics to be considered: the special problems of the American and Russian poet; the influence of French symbolism; imagism in America and acmeism in Russia; traditional and innovative prosody; problems of diction and voice; modernism in poetry and the fine arts; nationalism and cosmopolitanism; the artist and politics.

Women's Studies

J. Farley, director; A. H. Cook, J. R. Egner, H. Feldman, N. Furman, S. M. Ginot, J. L. Laws, S. J. Morgan, M. B. Norton, E. L. Vatter. Lecturers, 1973-74: K. A. Coleman, P. F. Haines, V. I. Kucyn, D. K. McCall, J. M. Massey, M. O'R. Rush, J. E. Zoble

Freshman Seminar:

100 Social Philosophy, Women, and Justice (also Philosophy 100) Either term. Credit three hours. M W 1:25-2:40. S. M. Ginot.

This freshman seminar focuses on views of the position of women as related to the notion of the "good society," especially in so far as justice is seen as a

prime virtue of social institutions. Proposals for changes in women's relationship to men and to the society as a whole are analyzed critically and considered in the theoretical and historical contexts in which they have arisen.

101 Women in America Fall term. Credit three hours (or, with an extra research paper, four hours). M W 10:10 and discussion section to be arranged. J. Farley.

An analysis of the place of women in the social order in twentieth-century America; an introduction to women's studies. Topics include a historical perspective, the image of women reflected in literature and art, an analysis of the life cycle using evidence from the biological sciences, an analysis of the institutions in a male-oriented society which affect women and men and their lives together, and the prospects for change in the future.

229 Women and Sport Fall term. Credit three hours. Prerequisite: one course in sociology, psychology, or women's studies. M W F 1:25. J. E. Zoble.

An analysis of women's achievements in sport. Themes will include historical factors which have helped or hindered the growth of interest in sports for women, biological factors which may affect excellence in performance, and the psychological and social factors which may put limits on female participation.

244 Sex Roles and Linguistic Behavior

Spring term. Credit four hours. Prerequisite: Linguistics 101, Psychology 215, or permission of the instructor. T Th 10:10. S. M. Ginot.

Types of linguistic phenomena where sex (of conversational participants or of referent) is a relevant variable will be surveyed; situations in different speech communities will be contrasted. Workshop sessions will include analysis of recorded interviews and conversational materials to increase understanding of English male/female speech differences. Possible origins and implications of sex-differentiated linguistic behavior will also be considered.

282 Social Psychology of Women (also Sociology 282 and Psychology 282) Spring term. Credit three hours. Prerequisite: Sociology 101 or Psychology 101 or 102. M W F 2:30. J. L. Laws.

Theories on women's personalities, roles, and capacities are compared with current research evidence. Special attention is given to the structure of thinking regarding women in the social sciences. Topics include women in the labor force, marriage and the family, socialization of girl children, female sexuality, women's aspirations and achievements, and the Women's Liberation Movement. Emphasis is given to findings of empirical research.

286 Feminism and the Bible Fall term. Credit three hours. M W F 9:05. R. Possen.

An analysis of the role played by the Bible in the nineteenth-century women's rights debates in the United States and of the current controversies over women's status in society as justified by Biblical "facts."

Contemporary Family Forms in the United States (Human Development and Family Studies 352, College of Human Ecology) Fall term. Credit three hours. Prerequisite: HD & FS 162 or Sociology 343. T Th 2:30-3:45. H. Feldman.

The purpose is to acquaint the student with monogamy and some of the alternatives currently in existence in the United States. These alternatives include nonmarital cohabitation, nonmarriage, nonparenthood, male homosexuality, lesbianism, communal living, adultery, and multiple marriage; the potential for liberation of men and women will be discussed for each of these. Attention will focus on research findings whenever available.

Theories of the Marital Dyad (Human Development and Family Studies 358, College of Human Ecology) Credit three hours. Spring term. W 2:15-4:30. H. Feldman.

Selective theories of the basic disciplines in social psychology, sociology, and psychology will be reviewed and their pertinence to understanding of the marital dyad examined. Students will generate hypotheses about these theories and test one of them either through a library or empirical paper. A notebook journal will be kept to interrelate the concepts and to suggest practical applications.

366 Women at Work (also Industrial and Labor Relations 366) Spring term. Credit four hours. Prerequisite: Women's Studies 101 or Industrial and Labor Relations 120 or equivalent. M W 10:10 and discussion section to be arranged. J. Farley.

This course examines various aspects of female occupational roles in twentieth-century America. Historical, social, and legal factors which influence women's choice of careers, work socialization and training, and subsequent labor market experience are considered. Women's entry-level jobs, opportunities for advancement, and income are also analyzed. Occupations in which women predominate are compared to occupations in which women are underrepresented.

367 American Women Poets Fall term. Credit four hours. Prerequisite: open to juniors and seniors and others with permission of the instructor. M W F 11:15. C. Burke.

A survey of contemporary American poetry by women including works by Bishop, Levertov, Plath, Sexton, and Jacobsen.

368 Male Novelist and Heroine Fall term. Credit four hours. Prerequisite: open to juniors and seniors

and others with permission of instructor. T Th 1:25-2:40. J. Ettin.

The study of the heroines in the works of Hawthorne, Hardy, and Lawrence, and of the convergence of artistic and feminist concerns in their novels.

[426 Undergraduate Seminar in Early American History: Women and the Family in Early America (also History 426)] Spring term. Credit four hours. Prerequisite: permission of the instructor. T 1:25-3:15. M. B. Norton. Not offered in 1974-75.]

499 Directed Study Either term. Variable credit. Prerequisite: one course in women's studies and permission of a member of the Women's Studies Faculty Board. Hours to be arranged. Members of the Faculty Board, Women's Studies Program.

569 Personnel Development (also Education 569) Fall term. Credit three hours. Prerequisite: graduate student standing. Th 4-6. J. R. Egner.

Focus is on development of a conceptual framework for understanding roles and functions of educational personnel responsible for personnel development and on developing skills in identifying and analyzing personnel problems, planning alternative strategies to cope with problems, and evaluating selected courses of action. A module focusing on women in education related to occupational decision making, career development, and self-awareness is part of the course. Opportunity is provided for independent study and special projects concerning personnel development of women in educational organizations.

635 Working Women in Nine Countries (also Industrial and Labor Relations 635) Fall term. Credit three hours (or with an extra research paper four hours). Prerequisite: one course in labor relations, economics, comparative government, or women's studies. T Th 2:30-3:45. A. H. Cook.

The course will draw on newly assembled materials from nine countries, with particular attention to the factors bringing women into the labor market. Special emphasis will be placed on the contrast between conditions, programs, and goals of Communist and non-Communist countries in this regard. Students will develop individual studies based on the available materials on such topics as occupational selection, training, re-training, on-the-job training, promotion, wage classifications and payment systems, maternity and child care leave, and other legislation particularly affecting women, on community support programs for working mothers including child care, transportation, health, and recreation programs for mothers and children, housing, housekeeping, and time-use. Knowledge of French, German, Polish, Russian, Chinese, or Japanese will be useful.

648 Studies in Victorian Fiction (also English 648) Fall term. Credit four hours. Prerequisite: consent of the instructor. M W F 10:10. S. J. Morgan.

A look at the conventions of hero and heroine in the works of George Eliot, Meredith, and James.

[684 Seminar in Feminine Identity (also Sociology 684 and Psychology 684) Fall term. Credit four hours. Prerequisite: graduate student standing or consent of the instructor. J. L. Laws. Not offered in 1974-75.]

748 Graduate Seminar in Jane Austen (also English 748) Spring term. Credit five hours. S. J. Morgan.

For information about additional women's studies courses to be offered during the 1974-75 academic year, students should inquire at the Women's Studies Program Office, 431 White Hall.

Related Courses Fall Term 1974

Laboratory and Field Methods in Biological Anthropology (Anthropology 471)

Biology for Nonmajors (Biological Sciences 109)

Allegory and Symbolism (Comparative Literature 446)

Oral Communication (Communication Arts 301, College of Agriculture and Life Sciences)

Introduction to Adult Education (Community Service Education 411, College of Human Ecology)

Art of Teaching (Community Service Education 441, College of Human Ecology)

Seminar on Women's Roles in International Rural Development (Community Service Education 651, College of Human Ecology)

Time-Use Decisions in Families (Consumer Economics and Public Policy 411, College of Human Ecology)

Educational Issues in a Democracy (Education 470, College of Agriculture and Life Sciences)

Career Education (Education 547, College of Agriculture and Life Sciences)

The Age of Realism (English 363)

The Politics of Population (Government 354)

From Politics to Policy: The Political Economy of Choice (Government 355)

Women and the Community (Human Affairs Program 425)

Law and the Woman Employee (Hotel Administration 542, School of Hotel Administration)

Development of Human Behavior (Human Development and Family Studies 115, College of Human Ecology)

The Family through Literature (Human Development and Family Studies 355, College of Human Ecology)

The Development of American Ideals (Industrial and Labor Relations 308, School of Industrial and Labor Relations)

Legal Interviewing and Counseling (Law 584, The Law School)

International Nutrition Problems, Policy, and Programs (Human Nutrition and Food 580, College of Human Ecology)

Ethics (Philosophy 241)

Images of Women in Russian Literature (Russian Literature 210)

The Family (Sociology 343)

Structure and Functioning of American Society (Sociology 441)

Historical Development of the World's Cities (Urban Planning and Development 401-501, College of Architecture, Art, and Planning)

Related Courses Spring Term 1975

Issues in Black Literature: Images and Themes in the Work of Contemporary Black Women Writers (Africana Studies 219)

Marriage, Family, and Kinship (Human Development and Family Studies 162, College of Human Ecology)

Adolescent Development in Modern Society (Human Development and Family Studies 317, College of Human Ecology)

Community Nutrition and Health (Human Nutrition and Food 445, College of Human Ecology)

Individual Differences (Psychology 485)

Population Problems (Sociology 230)

Role Theory (Sociology 380 and Psychology 380)

Methods of Research (Sociology 641)



Register

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 David C. Knapp, University Provost
 Mark Barlow, Jr., Vice Provost
 W. Donald Cooke, Vice President for Research
 William D. Gurowitz, Vice President for Campus Affairs
 Robert T. Horn, Vice President and Chief Investment Officer
 Samuel A. Lawrence, Vice President for Administration
 E. Hugh Luckey, Vice President for Medical Affairs
 Robert M. Matyas, Vice President for Planning and Facilities
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 Robert F. Risley, Vice Provost
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Faculty and Staff of the College of Arts and Sciences

Professors-at-Large

Professors-at-Large are distinguished nonresident members of the University Faculty. During short visits to the campus, of up to a month's duration, made at irregular intervals, they hold seminars, give public lectures, and consult informally with students and faculty.

Kenneth Boulding
 Howard M. Brown
 Felix Candela
 Jacques Drèze
 Cora DuBois
 Manfred Eigen
 Northrop Frye
 Sir Ernst H. Gombrich
 Ralph E. Gomory
 Louis Guttman
 J. George Harrar
 Sir Fred Hoyle
 Barbara McClintock
 J. Robert Schrieffer
 M. N. Srinivas
 Georg Henrik von Wright

Faculty *

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 David Connor, Associate Dean of the College of Arts and Sciences
 Robert A. Scott, Associate Dean of the College of Arts and Sciences
 Bernard Goodman, Assistant Dean of the College of Arts and Sciences
 Barbara B. Hirshfeld, Assistant Dean of the College of Arts and Sciences
 Elaine Lefferts, Assistant Dean of the College of Arts and Sciences
 James Larry Mench, Assistant Dean of the College of Arts and Sciences
 Margaret C. Unsworth, Assistant Dean of the College of Arts and Sciences

Meyer Howard Abrams, Ph.D., Class of 1916
 Professor of English
 Barry Banfield Adams, Ph.D., Associate Professor of English
 George Plimpton Adams, Jr., Ph.D., Professor of Economics, Emeritus
 Howard Bernhardt Adelman, Ph.D., Professor of Histology and Embryology, Emeritus
 Frederick Browning Agard, Ph.D., Professor of Linguistics, Emeritus
 Ralph Palmer Agnew, Ph.D., D. Sc., Professor of Mathematics, Emeritus
 Frederick M. Ahl, Ph.D., Associate Professor of Classics
 Andreas C. Albrecht, Ph.D., Professor of Chemistry
 H. Darkes Albright, Ph.D., Professor of Theatre Arts, Emeritus
 Henry A. Alker, III, Ph.D., Associate Professor of Psychology and Sociology³
 Vinay Ambegaokar, Ph.D., Professor of Physics
 Archie Randolph Ammons, B.S., Goldwin Smith Professor of Poetry³
 Benedict Richard Anderson, Ph.D., Associate Professor of Government³
 John Maxwell Anderson, Ph.D., Professor of Zoology, Section of Genetics, Development and Physiology, Division of Biological Sciences
 Robert Ascher, Ph.D., Professor of Anthropology and Archaeology²
 Neil William Ashcroft, Ph.D., Associate Professor of Physics
 Douglas E. Ashford, Ph.D., Professor of Government
 Elizabeth Asmis, Ph.D., Assistant Professor of Classics

*Numbers following names indicate: (1) leave of absence, fall term 1974; (2) leave of absence, spring term (3) leave of absence 1974-75.

- Eva Augsberger, Dr. Phil., Lecturer, Department of Modern Languages and Linguistics
- William Weaver Austin, Ph.D., Goldwin Smith Professor of Musicology
- Leonard H. Babby, Ph.D., Assistant Professor of Linguistics
- Alfred L. Baldwin, Ph.D., Professor of Psychology²
- Harlan Parker Banks, Ph.D., Professor of Botany
- Dietger Heinz Bansberg, Ph.D., Assistant Professor of German Literature
- LeRoy Leshner Barnes, Ph.D., Professor of Physics and Biophysics, Emeritus
- Simon H. Bauer, Ph.D., Professor of Chemistry
- Daniel A. Baugh, Ph.D., Associate Professor of Modern British History
- Jacques Béreaud, Doctorat D'Université, Associate Professor of Romance Studies
- Alan John Berger, M.A., Assistant Professor of German Literature
- Karl Berkelman, Ph.D., Professor of Physics³
- Martin Gardiner Bernal, Ph.D., Associate Professor of Government³
- Alvin H. Bernstein, Ph.D., Assistant Professor of History³
- Israel Berstein, Ph.D., Professor of Mathematics
- Aya Betensky, Ph.D., Assistant Professor of Classics
- Hans Albrecht Bethe, Ph.D., John Wendell Anderson Professor of Physics
- Knight Biggerstaff, Ph.D., Professor of Chinese History, Emeritus
- Malcolm Bilson, D.M.A., Associate Professor of Music²
- John M. Bird, Ph.D., Professor of Geological Sciences
- Alison Lurie Bishop, A.B., Acting Associate Professor of English
- Jonathan Peale Bishop, Ph.D., Professor of English
- Vilhjalmur T. Bjarnar, M.A., Lecturer in Linguistics
- Max Black, Ph.D., D. Litt., Susan Linn Sage Professor of Philosophy and Humane Letters
- Eric Albert Blackall, M.A., Dr. Phil., Litt. D., Jacob Gould Schurman Professor of German Literature
- Jean Frantz Blackall, Ph.D., Associate Professor of English
- Antonie William Charles Blackler, Ph.D., Professor of Zoology, Section of Genetics, Development and Physiology, Division of Biological Sciences³
- Erwin Aaron Blackstone, Ph.D., Assistant Professor of Economics
- Alfred Theodore Blomquist, Ph.D., Professor of Chemistry, Emeritus
- Arthur L. Bloom, Ph.D., Associate Professor of Geological Sciences
- Stuart Mack Blumier, Ph.D., Assistant Professor of History
- Nicholas C. Bodman, Ph.D., Professor of Linguistics
- John S. Bowers, Ph.D., Assistant Professor of Linguistics
- Raymond Bowers, Ph.D., Professor of Physics
- Richard Newell Boyd, Ph.D., Associate Professor of Philosophy
- Alfred Wade Boykin, Jr., Ph.D., Assistant Professor of Psychology
- James Henry Bramble, Ph.D., Professor of Mathematics
- Karen W. Brazell, Ph.D., Associate Professor of Japanese Literature
- Dalai Brenes, Ph.D., Professor of Romance Studies, Emeritus
- Herbert Whittaker Briggs, Ph.D., Goldwin Smith Professor of International Law, Emeritus
- Urie Bronfenbrenner, Ph.D., Professor of Psychology²
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- Kenneth Stephen Brown, Ph.D., Assistant Professor of Mathematics
- Lawrence David Brown, Ph.D., Professor of Mathematics
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- Morris R. Brownell, Ph.D., Assistant Professor of English
- Peter Frans Brussard, Ph.D., Assistant Professor, Section of Ecology and Systematics, Division of Biological Sciences
- Sanford Budick, Ph.D., Associate Professor of English
- James M. Burlitch, Ph.D., Associate Professor of Chemistry
- Edwin Thomas Burton, III, Ph.D., Assistant Professor of Economics
- Edwin Arthur Burt, S.T.M., Ph.D., L.H.D., Susan Linn Sage Professor of Philosophy, Emeritus
- Steven Brun Caldwell, M.A., Instructor in Sociology
- Robert Gilmer Calkins, Ph.D., Associate Professor of the History of Art
- Harry Caplan, Ph.D., Goldwin Smith Professor of the Classical Languages and Literatures, Emeritus
- Robert R. Capranica, Sc.D., Associate Professor, Section of Neurobiology and Behavior, Division of Biological Sciences
- Anthony Caputi, Ph.D., Professor of English
- Patricia J. Carden, Ph.D., Associate Professor of Russian Literature
- Marvin Albert Carlson, Ph.D., Professor of Theatre Arts
- Calum M. Carmichael, B. Litt., Associate Professor of Semitic Languages and Literatures¹
- David Giske Cassel, Ph.D., Associate Professor of Physics
- Jack Steven Catlin, Ph.D., Assistant Professor of Psychology
- Brian Frank Chabot, Ph.D., Assistant Professor, Section of Ecology and Systematics, Division of Biological Sciences
- Amanda E. Chacona, B.A., Lecturer, Department of Modern Languages and Linguistics
- Stephen Urban Chase, Ph.D., Professor of Mathematics
- Oswaldo Chateaubriand, Ph.D., Assistant Professor of Philosophy
- Geoffrey V. Chester, Ph.D., Professor of Physics
- Peter Shen-Kuo Chi, Ph.D., Assistant Professor of Sociology
- Frederick Lacy Churchill, M.F.A., Instructor in Theatre Arts
- Joan Helen Churchill, M.F.A., Assistant Professor of Theatre Arts

- John L. Cisne, Ph.D., Assistant Professor of Geological Sciences
- James Harvey Clancy, Ph.D., Professor of Theatre Arts
- Stella Clancy, B.A., Lecturer in Theatre Arts
- M. Gardner Clark, Ph.D., Professor of Industrial and Labor Relations
- Robert Theodore Clausen, Ph.D., Professor of Botany
- Kevin M. Clinton, Ph.D., Assistant Professor of the Classics²
- Sherman Gilbert Cochran, M.A.T., Assistant Professor of History
- Marshall M. Cohen, Ph.D., Associate Professor of Mathematics
- Michael J. Colacurcio, Ph.D., Associate Professor of English
- Alice Mary Colby, Ph.D., Associate Professor of Romance Studies
- LaMont C. Cole, Ph.D., Professor of Ecology, Section of Ecology and Systematics, Division of Biological Sciences
- Nancy Cole, M.F.A., Lecturer in Theatre Arts
- Stephen R. Cole, B.A., Associate Professor of Theatre Arts
- W. Storrs Cole, Ph.D., Professor of Geological Sciences, Emeritus
- John Evander Coleman, Ph.D., Assistant Professor of the Classics
- Robert Connelly, Ph.D., Assistant Professor of Mathematics
- David Connor, Ph.D., Senior Lecturer, Department of German Literature
- Robert Lee Constable, Ph.D., Associate Professor of Computer Science³
- George Erskine Cooke, Ph.D., Assistant Professor of Mathematics
- William Donald Cooke, Ph.D., Professor of Chemistry
- Morris Albert Copeland, Ph.D., Robert Julius Thorne Professor of Economics, Emeritus
- Dale Raymond Corson, Ph.D., Professor of Physics
- Robert Milo Cotts, Ph.D., Professor of Physics
- J Milton Cowan, Ph.D., Professor of Linguistics, Emeritus
- Paul James Curtis, Visiting Lecturer of Theatre Arts
- Irene Daly, Lecturer, Department of Modern Languages and Linguistics
- Russell Mather Dancy, Ph.D., Associate Professor of Philosophy
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- Werner J. Dannhauser, Ph.D., Associate Professor of Government¹
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- John Emory Dennis, Jr., Ph.D., Associate Professor of Computer Science
- Roger Keith Dennis, Ph.D., Assistant Professor of Mathematics
- Urbain J. DeWinter, Ph.D., Assistant Professor of Romance Studies
- John William DeWire, Ph.D., Professor of Physics³
- Herbert Dieckmann, Ph.D., Avalon Foundation Professor in the Humanities, Emeritus
- William C. Dilger, Ph.D., Associate Professor of Ethology, Section of Neurobiology and Behavior, Division of Biological Sciences
- Archie Thompson Dotson, Ph.D., Professor of Government
- Esther Gordon Dotson, Ph.D., Assistant Professor in the History of Art
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- John Hubbel Weiss, M.A., Instructor in History
- Robert Weissberg, Ph.D., Assistant Professor of Government
- John West Wells, Ph.D., Professor of Geological Sciences, Emeritus
- James Edward West, Ph.D., Associate Professor of Mathematics¹
- Winthrop Wetherbee, III, Ph.D., Professor of English³
- David Hywel White, Ph.D., Professor of Physics
- Robert H. Whittaker, Ph.D., Professor of Biology, Section of Ecology and Systematics, Division of Biological Sciences
- William Foote White, Ph.D., Professor of Sociology
- Benjamin Widom, Ph.D., Professor of Chemistry
- John R. Wiesenfeld, Ph.D., Assistant Professor of Chemistry
- Charles F. Wilcox, Jr., Ph.D., Professor of Chemistry
- Gordon W. Wilcox, Ph.D., Assistant Professor of Psychology
- John Warren Wilkins, Ph.D., Professor of Physics
- L. Pearce Williams, Ph.D., John Stambaugh Professor of History²
- Robin Murphy Williams, Jr., Ph.D., Henry Scarborough Professor of Social Science³
- David B. Wilson, Ph.D., Associate Professor, Section of Biochemistry, Molecular and Cell Biology, Division of Biological Sciences
- Kenneth Geddes Wilson, Ph.D., James A. Weeks Professor of Physical Science
- William Abell Wimsatt, Ph.D., Professor of Zoology, Section of Genetics, Development and Physiology, Division of Biological Sciences
- John Ulrich Wolff, Ph.D., Associate Professor of Linguistics³
- Oliver William Wolters, Ph.D., Professor of Southeast Asian History
- Kam-ming Wong, Ph.D., Assistant Professor of Chinese Literature¹
- Allen William Wood, Ph.D., Associate Professor of Philosophy
- William Mooney Woodward, Ph.D., Professor of Physics
- Ray Wu, Ph.D., Professor of Biochemistry, Section of Biochemistry, Molecular and Cell Biology, Division of Biological Sciences
- David Kent Wyatt, Ph.D., Associate Professor of History³
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- Donald R. Yennie, Ph.D., Professor of Physics
- Martie Wing Young, Ph.D., Professor of the History of Art
- Donna Martin Zahorik, Ph.D., Assistant Professor of Psychology

Neal Alexander Zaslaw, Ph.D., Associate Professor of
Music

(This listing of the faculty of the College of Arts and
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